Temporary Registration No. : TPN / 84491

Project Proposal On

"STI HUB Pochampally - Optimization and Automation of age old Handloom to Improve the Quality of Life of Rural Women Artisans"

Submitted to

Division :SEED

Programme or Scheme : STI Hub for SC Community

Submitted by

Project Investigator:

Dr. A RAMASWAMI REDDY

MALLA REDDY ENGINEERING COLLEGE(AUTONOMOUS)-Hyderabad

Part 1 : General Information

General Information:

1.Name of the Institute/University/Organisation submitting the Project Proposal :

MALLA REDDY ENGINEERING COLLEGE(AUTONOMOUS)

2. State	Telangana
3. Principal Investigrator Name:	Dr. A RAMASWAMI REDDY
4. Category:	General
5. Type of the Institue :	Academic Institutions (Private)
6. Project Title :	STI HUB Pochampally - Optimization and Automation of age old Handloom to Improve the Quality of Life of Rural Women Artisans
7. Division :	SEED
8. Programme Or Scheme :	STI Hub for SC Community
9. Academic Area :	Electronics,Computers and Communication Engineering,
10. Application Area :	
11. Goverment National Initiative :	Not Applicable,
12. Type of Proposal :	Proposal Against Call
13. Project Duration :	3 Years and 0 Months
14. Proposal Submit Date :	16/08/2022
15. Project Keywords :	Handlooms, Semi Automatic Loom, weaving, yarning
16. Project Summary :	

The traditional techniques maintained in many of the rural areas are exhausting due to the demand in productivity and automation. The Products obtained have a large life when compared with the present fabrics. Thus to save the traditional mechanisms used for weaving, they have to be optimized and mechanized using current trends in technology for more production. This facilitates an enabling environment for overall development of rural women weavers in difficult circumstances. This will minimize the design cost and manufacturing difficulties of complex textile machinery and equipment.
The project aims at designing and fabricating on automated loom which can be used for weaving clothes with a greater productivity and Quality. Rural areas Pochampally consist of skilled people who can use threads made from natural materials and weave clothes with greater efficiency. By using this automated looms, all resources in rural areas can be deployed together. The major problem is breakage in thread due to wearing thickness and improper thread diameter. The filling carrier is passed between rows of thread manually for moment in backward and forward direction. The filling carrier has to be operated automatically for frequent stoppers are triggered to hit the filler shoot. This makes filler to move in either direction.
Artisans are facing too many difficulties like a thread breakage, less productivity, more strain while using traditional loom for weaving of clothes. By using this automated loom artisans can overcome all these difficulties and in return they gain profit and work satisfaction.
The women residing in rural areas have been continuing their livelihood with basic amenities available for them, agriculture land and herding of cows and calves. These rural women are unable to get employability due to their regular household and agriculture activities. Their economy gets deteriorated during the unseason of agriculture and natural disaster.
In view of the objective of STI HUB to retain the traditional techniques and improve the livelihood of the rural community, the women can be trained to artisans and scale up their economic background.

Part 2: Particulars of Investigators

Principal Investigator:

1. Name:	Dr. A RAMASWAMI REDDY
Gender:	Male
Date of Birth:	08/05/1977
Designation :	PROFESSOR AND PRINCIPAL
Department:	COMPUTER SCIENCE AND ENGINEERING
Institute/University:	MALLA REDDY ENGINEERING COLLEGE(AUTONOMOUS)
State:	Telangana
District:	Medchal
City/Place:	Hyderabad
Address:	Maisammaguda, Dhulapally, post via Kompally, Secundarabad, Telangana.
Pin:	500100
Communication Email:	ramaswamyreddymail@gmail.com
Alternate Email:	principal@mrec.ac.in
Mobile:	7093767183

Phone:	
Fax:	
Category:	General

Co-Investigator:

1. Name:	Dr. S Udaya Bhaskar
Gender:	Male
Date of Birth:	14/04/1981
Designation :	Professor
Department:	Mechanical Engineering
Institute/University:	MALLA REDDY ENGINEERING COLLEGE(AUTONOMOUS)
State:	Telangana
District:	Medchal
City/Place:	Hyderabad
Address:	Malla Reddy Engineering College-Autonomous
Pin:	500100
Communication Email:	udaylohith1412@gmail.com
Alternate Email:	
Mobile:	6303622066
Phone:	
Fax:	
Category:	SC
2. Name:	Dr. Venkata Rathnam Ukkurthi
Gender:	Male
Date of Birth:	11/04/1987

Designation :	Associate Professor
Department:	Civil Engineering
Institute/University:	MALLA REDDY ENGINEERING COLLEGE(AUTONOMOUS)
State:	Telangana
District:	Medchal
City/Place:	Hyderabad
Address:	Malla Reddy Engineering College-Autonomous
Pin:	500100
Communication Email:	ratnam108@gmail.com
Alternate Email:	
Mobile:	9963512535
Phone:	
Fax:	
Category:	OBC

3. Name: Dr. N Manikanda Devarajan

Gender:	Male
Date of Birth:	05/12/1980
Designation :	Associate Professor
Department:	Electronics and Communication Engineering
Institute/University:	MALLA REDDY ENGINEERING COLLEGE(AUTONOMOUS)
State:	Telangana
District:	Medchal
City/Place:	Hyderabad
Address:	Malla Reddy Engineering College, Maisammaguda(H),Gundlapochampally (V),Medchal (M). Medchal - Malkajgiri District Telangana - 500100
Pin:	500100

Communication Email:	nmdeva@gmail.com
Alternate Email:	
Mobile:	9345799777
Phone:	
Fax:	
Category:	OBC

4. Name: Dr. T Venkata Deepthi

Gender:	Female
Date of Birth:	22/01/1983
Designation :	Associate Professor
Department:	Mechanical Engineering
Institute/University:	MALLA REDDY ENGINEERING COLLEGE(AUTONOMOUS)
State:	Telangana
District:	Medchal
City/Place:	Hyderabad
Address:	Malla Reddy Engineering College,Maisammaguda(H),Gundlapochampally (V),Medchal (M). Medchal - Malkajgiri District Telangana - 500100
Pin:	500100
Communication Email:	venkatadeepthi.t@gmail.com
Alternate Email:	
Mobile:	9985589596
Phone:	
Fax:	
Category:	General

5. Name: Dr. P Marimuthu

Gender:	Male

Date of Birth:	11/06/1977
Designation :	Professor
Department:	Electrical and Electronics Engineering
Institute/University:	MALLA REDDY ENGINEERING COLLEGE(AUTONOMOUS)
State:	Telangana
District:	Medchal
City/Place:	Maisammaguda
Address:	Professor, EEE, Mallareddy Engineering College
Pin:	500100
Communication Email:	spm.muthu78@gmail.com
Alternate Email:	
Mobile:	9043872893
Phone:	
Fax:	
Category:	OBC

6. Name: Ms. S Chakra Sireesha

Gender:	Female
Date of Birth:	28/08/1985
Designation :	Associate Professor
Department:	Mechanical Engineering
Institute/University:	MALLA REDDY ENGINEERING COLLEGE(AUTONOMOUS)
State:	Telangana
District:	Medchal
City/Place:	HYDERABAD
Address:	Malla Reddy Engineering College-Autonomous

Pin: 500100

Communication Email: sireeshasingapati@gmail.com

Alternate Email:

Mobile: 9640682219

Phone:

Fax:

Category: OBC

Part 3: Suggested Refrees

Suggested Refrees: NA

Part 4: Financial Details

Financial Details:

A. Non - Recurring

Equipment

S.	Equipments	Qty.	Justification	1 Year	Total
1 .	Looming Machine	10	The Traditional machine redesign to semi automated machine	1501000	1501000
			Total	**1501000**	**1501000**

Other NonRecurring

S.	Description	Justification	1 Year	2 Year	3 Year	Total
1 .	Construction Cost	Includes the cost of raw materials, plinth, walls roof and floor work etc..	900000	0	0	900000
2 .	Fabrication Costs	Combining Standardized parts by procee	0	0	75000	75000
3 .	Fabrication Costs	Combining Standardized parts by process	95000	95000	0	190000
		Total	**995000**	**95000**	**75000**	**1165000**

B. Recurring

Project Staff

S.	Project Staff	No.	Justification	1 Year	2 Year	3 Year	Total
1 .	Project Assistant	1	Basic Rs20,000/pm+24%DA	297600	297600	297600	892800
2 .	Project Associate-I	2	Basic 31,000+ 24% DA	922560	922560	922560	2767680
			Total	**1220160**	**1220160**	**1220160**	**3660480**

Consumables

S.	Items	Qty.	Justification	1 Year	2 Year	3 Year	Total
1 .	Yarn, Stationeries, Printouts, Files and Folders etc..	1	Project Documentation and submission	0	0	300000	300000
2 .	Yarn, Stationeries, Printouts, Files and Folders etc..	1	Project Documentation and submission.	550000	400000	0	950000
			Total	**550000**	**400000**	**300000**	**1250000**

Contingency

S.	Description	Justification	1 Year	2 Year	3 Year	Total
1 .	Economic Recession, Natural disaster, Books, Postal & Courier Expenses, et..	The account for uncertainty in that estimation by factoring any risk	300000	300000	300000	900000
		Total	**300000**	**300000**	**300000**	**900000**

Travel

S.	Description	Justification	1 Year	2 Year	3 Year	Total
1 .	Field Activities	Frequent visit to the field from the organization	100000	100000	100000	300000
2 .	Project Logistics	The activity of organizing the movement, equipment etc..	100000	100000	100000	300000
		Total	**200000**	**200000**	**200000**	**600000**

Overhead

S.	Description	Justification	1 Year	2 Year	3 Year	Total
1 .	Lab Usage, Internet, Electricity, etc	Usage of the resources in the organization	255000	250000	200000	705000
		Total	**255000**	**250000**	**200000**	**705000**

Any Other Recurring

S.	Description	Justification	1 Year	2 Year	3 Year	Total
1 .	Others	Field Trials, Technology Testing and Deployment	200000	200000	200000	600000
2 .	Budget for Training	Technical skills training to the target audience and Knowledge transfer	300000	300000	300000	900000
3 .	Review Meeting by DST	Travel Allowances, Accommodation, Food and Field Visit	250000	250000	250000	750000
		Total	**750000**	**750000**	**750000**	**2250000**

Budget Head Summary in (INR)

Budget Head	Year-1	Year-2	Year-3	Total
1- Non-Recurring				
Equipment	1501000	0	0	**1501000**
Other NonRecurring	995000	95000	75000	**1165000**
Subtotal (Capital)	2496000	95000	75000	**2666000**
2- Recurring				
Project Staff	1220160	1220160	1220160	**3660480**
Consumables	550000	400000	300000	**1250000**
Contingency	300000	300000	300000	**900000**
Travel	200000	200000	200000	**600000**
Overhead	255000	250000	200000	**705000**
Any Other Recurring	750000	750000	750000	**2250000**
Subtotal (General)	3275160	3120160	2970160	**9365480**
Total Project Cost (Capital + General)	**5771160**	**3215160**	**3045160**	**12031480**

Part 5: PFMS Details

PFMS Unique Code Available: Yes

PFMS Unique Code : TLML00000156

Part 6: Current Ongoing Project

Current Ongoing Project: NA

List of Uploaded Documents:-

1. Complete Project proposal
2. Biodata
3. Certificate from PI
4. Conflict of interest
5. Endorsement from head of Institute
6. Quotation for Equipments

PART I: EXECUTIVE SUMMARY

1. Project Title: STI HUB Pochampally - Optimization and Automation of Age Old Handloom to Improve the Quality of Life of Rural Women Artisans

Science Technology and Innovation Hub in **Pochampally** Block, **Yadadri Bhuvanagiri** District, **Telangana** State.

2. Name of the Institution & Address

Malla Reddy Engineering College.
Main Campus, Maisammaguda, Medchal- Malkajagiri
Secunderabad – 500100, Telangana State.

3. Details of the Project Team

i. Principal Investigator	
Name	Dr. A. Ramaswami Reddy
Date of Birth	08.05.1977
Highest Qualification	PhD
Designation	Professor
Department	Computer Science & Engineering
Institute/University	Malla Reddy Engineering College
Complete Address with Pin Code	Main Campus, Maisammaguda, Medchal- Malkajagiri Secunderabad – 500100, Telangana State
Telephone and Fax Numbers	-
Mobile Number	9348161125
E – Mail	principal@mrec.ac.in
ii. Co Investigators	
Name	Dr. S. Udaya Bhaskar
Date of Birth	14-04-1981
Highest Qualification	Ph.D
Designation	Professor
Department	Mechanical Engineering
Institute/University	Malla Reddy Engineering College
Complete Address with Pin Code	Main Campus, Maisammaguda, Medchal- Malkajagiri Secunderabad – 500100, Telangana State
Telephone and Fax Numbers	-
Mobile Number	6303622066
E – Mail	udaybhaskar@mrec.ac.in
Name	Dr. Venkata Rathnam Ukkurthi
Date of Birth	11-04-1987
Highest Qualification	Ph.D
Designation	Associate Professor
Department	Civil Engineering
Institute/University	Malla Reddy Engineering College
Complete Address with Pin Code	Main Campus, Maisammaguda, Medchal- Malkajagiri Secunderabad – 500100, Telangana State
Telephone and Fax Numbers	-
Mobile Number	9963512535
E – Mail	ratnam108@gmail.com
Name	Dr. T. Venkata Deepthi
Date of Birth	22.01.1983
Highest Qualification	Ph.D
Designation	Associate Professor
Department	Mechanical Engineering
Institute/University	Malla Reddy Engineering College

Complete Address with Pin Code	Main Campus, Maisammaguda, Medchal- Malkajagiri Secunderabad – 500100, Telangana State
Telephone and Fax Numbers	-
Mobile Number	9985589596
E – Mail	venkatadeepthi@mrec.ac.in
Name	Dr. N. Manikanda Devarajan
Date of Birth	05.12.1980
Highest Qualification	Ph.D
Designation	Associate Professor
Department	Electronics and Communication Engineering
Institute/University	Malla Reddy Engineering College
Complete Address with Pin Code	Main Campus, Maisammaguda, Medchal- Malkajagiri Secunderabad – 500100, Telangana State
Telephone and Fax Numbers	-
Mobile Number	93457-99777
E – Mail	nmdeva@gmail.com
Name	Dr.P.Marimuthu
Date of Birth	11.06.1977
Highest Qualification	Ph.D
Designation	Professor
Department	Electrical and Electronics Engineering
Institute/University	Malla Reddy Engineering College
Complete Address with Pin Code	Main Campus, Maisammaguda, Medchal- Malkajagiri Secunderabad – 500100, Telangana State
Telephone and Fax Numbers	-
Mobile Number	9043872893
E – Mail	spm.muthu78@gmail.com
Name	Ms. S. C. Sireesha
Date of Birth	28-08-1985
Highest Qualification	M.Tech
Designation	Associate Professor
Department	Mechanical Engineering
Institute/University	Malla Reddy Engineering College
Complete Address with Pin Code	Main Campus, Maisammaguda, Medchal- Malkajagiri Secunderabad – 500100, Telangana State
Telephone and Fax Numbers	NA
Mobile Number	9640682219
E – Mail	sireeshasingapati@mrec.ac.in

4. Project Area Profile:

(a) Demographic Details (give details of geographical area covered, climate, land use & cropping patterns)

Pachampally village is spread over an area of 28.42 km². A total population is 51,061 people are living in this village. The Literacy percentage is 59.41 percent, out of these 35.58 percent is male literates and 23.83 percent is female literates. Total Workers percentage is 48.35 percent, out of these 28.88 percent is male workers and 19.47 percent is female workers. Total Mandal Agriculture farmers percentage is 7.26 percent in Pochampally, out of these 5.22 percent is male farmers and 2.04 percent is female farmers. Pochampally Labor percentage is 12.33 percent, out of these 5.38 percent is male labor and 6.96 percent is female labor. The Maximum temperature is 45ºC during summer and 26ºC during monsoon. The principal crops in the district are paddy, cotton, red gram, green gram, maize, groundnut and chillies. The climate and soil of the district is most suitable for raising horticultural crops.

(b) Target Area/Location for Establishing STI Hub (please mention whether the target area (STI Hubs) falls under aspirational district or PMAGY Village etc) – As far as possible the STI should be located in the vicinity of the beneficiaries.

Target Area/Location for Establishing STI Hub is **Pochampally**

Address of the Village: Pochampally Block, Yadadri Bhuvanagiri District, Telangana State-508284.

(c) Target Beneficiaries (type, total size of target group(s), % of SC of total population in project area etc, number of beneficiaries, % of SC of total beneficiaries)

The total population in Pochampally is 51,061 with 26,424 males and 24,637 females. Out of which 8,219 (16.09%) Schedule Caste and 1,138 (2.22%) Scheduled Tribe Population. Around 3218 women in the SC community are residing in the village out of which 23% are senior citizens, 48.2% are housewives, 23.8% are doing their schooling and the remaining are younger ones.

Note: (i) In case the STI caters to beneficiaries in different target locations (villages/blocks/districts), the details of each of the project area should be given

(ii) In case the beneficiaries of STI Hubs are predominantly SC, the proposal should be applied under SC Category and if the beneficiaries are predominantly ST, the proposal should be applied under ST Category in the e PMS

5. Baseline Data Capture

{Describe the current situation that STI Hub intends to address (as a point of reference to measure success upon project completion). Briefly provide quantitative and/or qualitative information on the existing conditions that support the need for STI Hub}.

Resources available in Pochampally

Agriculture and weaving are the predominant activity for about 20% and 80% respectively of the population of the village. The types of soils in the district are sandy loams (chalka), loamy sands (Dubba) soils and black soils. There are 2 active cotton handloom weavers' co-operative societies and 1 active silk handloom weavers' cooperative societies.

The elder people have been a part of the looming during their young age. They have got their backs due to continuous operations of the manual looms. Their skill set in weaving can be saved by

transferring the techniques to younger generation and household women. The STI hub will record the experienced skills and traditional techniques for yarning, dyeing and looming of clothes. But many of the weavers are older and are struggling to operate the looms since the work is continuous and they get used to it. The yarns prepared by the weavers are given to the society in order to pay back for their livelihood. The rural women can be trained as artisans from their homes and improve their livelihoods.

6. Analysis of Livelihood Systems (may please refer to Sustainable Livelihood Framework in Annexure VII)

(a) Predominant Livelihoods in the target area (current major occupations of the community, present average annual income etc)

In Pochampally, the major occupation is cultivation, weaving and marketing the fabric through the cooperative society. More than Rs.2,50,00,000/- annual business in terms of yarn sales, purchase of handloom products and sales. The average annual income of the community families is Rs. 62,500/-

(b) Predominant Livelihoods of SC community (current occupations of the target beneficiaries, present average annual income etc)

The current occupations of target beneficiaries are cultivation and herding cows and calves. Their Average Annual Income of the beneficiaries is Rs.62,500/-

(c) Details of Livelihood Assets (ex: agriculture land, animals etc)

The rural people depend on the agricultural lands available for their livelihoods. Around 0.5 acres of agricultural land per family is available. The majority of the herds are cows and calves, available in many of the houses.

(d) Industrial milieu of the target area

Traditional Industries of weaving of clothes by the rural artisans, Farming, Art & Craft Works. The rural women will be trained as artisans in making the yarns and supplying to the textile industries available in the vicinity of the village.

(e) Details of Existing Social/Rural Enterprises

Socio economic status of the respondents was calculated by considering education, occupation, and total monthly income of the family. Results revealed that 86.7 percent of female workers and 80 percent of male workers belonged to a lower economic status.

(f) Socio-economic Status (details of social and economic conditions, availability of basic amenities and facilities etc.)

Socio economic status of handloom weavers revealed that the gender ratio in the occupation was 3:1. Most of the young adult and middle aged women weavers were involved in weaving, and the percentage was significantly higher than male weavers. The active time spent on weaving will earn more remuneration, which will enhance the socioeconomic status of the individuals. The traditional handloom procedure is still followed in these areas.

(g) Availability of Natural Resources & Raw Materials

The natural resources available for the targeted beneficiaries are Agricultural Land, Ground Water, Palmyra Palm Trees, Limestone and Granite stones.

(i) Access to Technologies

Currently Co-operative Societies are available through which the entire process is done

(j) Details of Indigenous Knowledge Systems (traditional skills, practices, art, craft etc)

Weaving, Art & Crafts, Farming, etc

(k) Information on human capital (health, education, nutrition, skill etc.) of target beneficiaries.

Schools : Government 6 and Private 8
Hospitals : Primary hospital 1 & Homeopathy hospital 1
Weavers' Co-operative Society : 2
Number of banks : 4
Post-office : 1
Lakes & Canals in the village : 6 (in and around village)

7. Problem Statement

(should be based on identification of weakest links/gaps/problems in the predominant livelihood systems – the problem identification should be supported with evidence based data – may be based on livelihood system analysis, investigators fieldwork in the target area, district (industrial) reports, data from various others reports, NRLM, SRLM data etc)

The rural women's presents in the Pochampally village are maximum housewives and mostly dependent on the crops they produce from the agricultural fields. Due to marginal issues they are unable to get a proper livelihood. From the survey 8,219 (16.09%) SC community people are available in the village. Total 3218 women in the SC community are residing in the village out of which 741 are senior citizens, 1552 are housewives, 766 are in their teenage, doing their schooling and the remaining are kids. The women residing in rural areas have been continuing their livelihood with basic amenities available for them, agriculture land and herding of cows and calves. They are unable to get employability due to their regular household and agriculture activities. Their economy deteriorates during unseasonal agriculture and natural disasters.

The traditional handloom procedure is still followed in these areas. The yarns and dyeing of natural colors is the artistic nature of the heritage India. Many of the weavers are older and are struggling to operate the looms. The problem found is that as technology has been moved ahead in India, still the looms are operated manually.

In Pochampally, the weavers are using the traditional method of yarn and dyeing of natural colors and manual looms for production. Here the traditional weaving is followed in few of the houses and few have started weaving Towels, bed sheets and curtain cloths.

The beating of the filler shoot, operation of the reed and treadles are the major processes in looms. Due to the continuous operation of the loom, the weaver has to bend forward and move his limbs either of the ways, which has a lot of strain in their body.

8. Proposed Solution

(should correspond to the problems identified, may focus on immediate, short-term, medium and long term requirements/solutions)

Initially rural women are trained to prepare yarns from cotton. Later these yarns are dyed by using natural colors. These colors will be long lasting, safe and available at reasonable cost. The clothes made of such yarns have greater reliability. Further rural women are trained in making different thickness, sizes and diameters of yarn based on the requirement. Once these rural women are well trained in making these different sizes of yarns, then they will be given training on usage of semi-automatic loom. This will help them to increase their productivity and will be able to improve the standards of their living.

During various weaving processes like knitting, warping, unwinding etc. Cyclic forcing will be induced in yarn due to motion and mechanisms of its process. This leads to yarn tension which can be avoided by using a yarn tension sensor. It detects small tension changes and rejects high frequency changes. Yarn or thread breakage in the production of fabric in looms is a significant issue in the manufacturing automation process. Due to the difficulty and complexity of the real process of yarn tension testing, the composition and movement principle of the let-off and take-up mechanism, which was based on the origin of yarn tension, were examined. Breakage of yarn or thread in automated looms is fully detected and indicated. Cloth or fabric production on looms is divided into three phases: they are shedding, picking and breaking in. Properly designed shedding mechanisms will be helpful for weavers in making bulk orders with less effort and strain.

9. Details of Proposed Interventions

Sl. No.	**Interventions**	***Justification***
1)	Preparing yarns by semi automatic machine.	Training the rural women to make yarns from the cotton.
2)	Making of yarns prepared from the colored threads for direct utilization.	Training the rural women as artisans to make different types of yarns. The yarns are colored for direct supply to the industries.
3)	Utilization of natural colors for the yarns.	Training for dyeing of yarns using natural colors, to avoid the intrusion of artificial colors and improve the reliability of the cloth.
4)	Making threads of different diameters for different garments and household needs.	Training for making different size yarns based on the garments and household requirements.
5)	Operation of semi automatic loom.	The target beneficiaries will be trained to operate the semi automatic loom for weaving clothes.

10. Nature of the project

Technology development (new technology, new product/process)	-
Adaptive R&D (Location Specific Research & Technology Development including Technology modification/modulation/ optimization, up/down scaling of existing systems, technology adaption/adoption etc)	Yes
Technology transfer (field trials, demonstrations & transfer of technology)	Yes
Technology dissemination (Replication of successful models, deployment of new and available technologies for identified problem)	Yes

11. Give the details of technologies proposed/to be proposed

(a) selected for up/down scaling, technology adaption/adoption etc and/or

To preserve the traditional weaving skill, involvement of the younger generation and rural women needs to be made to bring back dignified life by motivating them and creating more artistic miniatures in handlooms and handicrafts. This can be achieved by making them use the traditional looms with few components attached to the looms, which reduces the work effort and makes them to think on designs and creativity to flourish in the market.

(b) Technology transfer -

The rural women are trained to handle semi automated looms. The target beneficiaries are also trained as artisans for evolving with different colors from the natural color. Optimization of color

content is trained to evolve with new colors. Dyeing of the yarns with required color for feeding the industries. Making the yarns from the manual machines, with different diameters based on the handloom required.

(c) selected for demonstration, dissemination and deployment

The project aims at designing and fabricating an automated loom which can be used for weaving clothes with a greater productivity and Quality. Rural areas (Pochampally) consist of skilled people who can use threads made from natural materials and weave clothes with greater efficiency. By using these automated looms, all resources in rural areas can be deployed together. The major problem is breakage in thread due to wearing thickness and improper thread diameter. The filling carrier is passed between rows of thread manually for moment in backward and forward direction. The filling carrier has to be operated automatically for frequent stoppers are triggered to hit the filler shoot. This makes the filler move in either direction.

12. Importance of the proposed Interventions (Technologies) in the context of current status (please indicate how the proposed interventions will improve livelihoods, health, socioeconomic status etc)

The weavers are facing many problems in the weaving industry, in order to manufacture bulk fabrics it can only be possible for large scale industries but using automated loom, the small scale industries can also be involved in the bulk making process. It makes a high impact on development of weaving in terms of production time according to human needs, it makes heavy profits in this industry. An inexperienced person can also operate a machine without keeping much effort indirectly it reduces the labor cost and maintenance cost. Due to elimination of the repeated work, weaver feels more satisfied with the automation system.

13. Science & Technology component/Innovativeness/Novelty of the project.

The Structure is designed by 3D printers, which require special 3D printers. The Stepper motors are used for step wise rotational operations and servo motors are used for angular motions in the required area. The brain of this overall process can be maintained and operated by Microcontroller (Processor) along with real time sensors such as proximity sensor. The processor is the primary component used to manufacture the cloth in various patterns.It is capable of reading designs from an SD card in order to create unique designs. The weft and wrap operation is completely automated, by using specially developed needles and structure.

The filler shoot is manufactured using the 3D printing machine to optimize the weight and design. The kinematic mechanism is analyzed for proper movement of the links and synchronization in the loom. The filler shoot in the loom is automated keeping in view of the rural areas where still the weaving is done manually.

The designed model parts must be printed using the required parameters, and they must be workable in a noise-free process. For this process, bearings are used to reduce friction losses and produce sound because many machines, including automated looms, produce noise, which can be reduced by using this process.

Design of fabrics is implemented by the mechanism of shedding looms. The development of loom technology is implemented in previous designs successfully for many years, but the designing of cloth or textile in different patterns and designs has been a problem for designer fabrics, it can be done easily to implement the design on clothes by this project, this process can be implemented by randomizing the process

of shedding
The output of the automated loom produces textiles in a timely and efficient manner. The designing process can also be included in this process, which is a unique feature when compared to other projects. With this proposed design, the user can easily assemble the attachments to the loom. It also helps to develop small-scale businesses.

14. Expected Deliverables (5-6 clear cut deliverables)

The targeted beneficiaries are trained for making the yarns by manual in initial state and semi automatic yarning in the later stage. The dyeing of natural colors to the yarns.

- An inexperienced weaver can operate the proposed loom without any difficulty; it reduces the labor cost and maintenance cost.
- The separate shedding strings are used which can be operated by the control of the processor in making specific designs of the cloth.

15. Expected benefits to the target groups/population (5-6 clear cut deliverables)

The SC community, rural people & women Artisans in the pochampally village can be exposed to latest & emerging technologies of weaving. It will reduce repetitive work and increase productivity. This can create women Empowerment. Women are the basic pillars of our society who preserve historical, science, heritage & cultural narrative of land. When women start adapting these latest emerging technologies, they can handle the future of weaving technology. Global recognition for these handloom products will uplift the standards of society.
The SC community people available in the Pochampally village can get employability

- Satisfaction of weaver using the automated loom which avoids the repeated work.
- Incorporating latest and emerging technologies to develop rural women and youngsters for handling the future of weaving technology.
- Preserving the historical, science, heritage and cultural narrative of the land.
- Increased productivity with existing weaving machines and production output
- The Designing work can be optimized based on size of the loom.

16. Suggested plan of action for utilization of the outcome expected from the project

(please give a larger perspective of the projects outcomes to National Developmental Goals/National Missions etc)

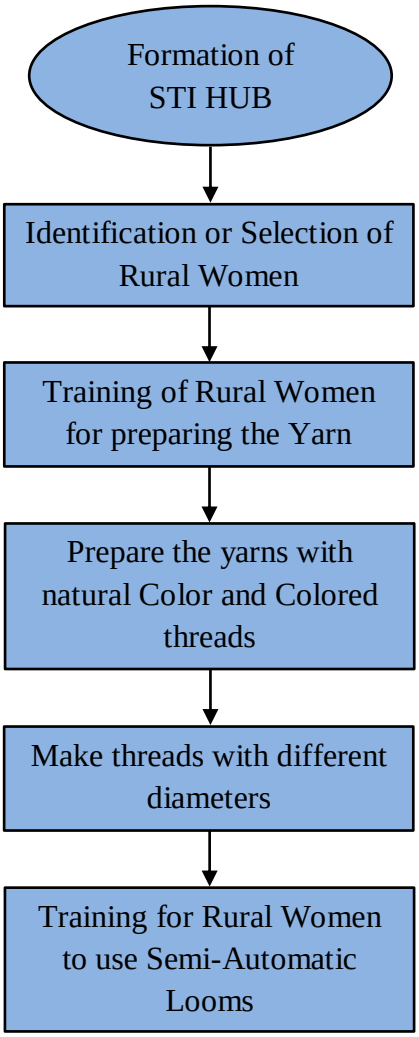
- The SC Community rural women are trained to handle semi automated looms in order to improve their livelihood.
- The traditional skill of weaving will be used for producing the garments
- Automate the movement of the filler carrier to avoid the repeated tapping of the filler carrier to move back and forth during weaving.
- Optimize the kinematic mechanism of the loom to eliminate the strain of the weavers and increase the production rate.
- Optimizing the yarn speed based on the diameter of the threads and detection of breaking of the yarns by attaching the tension sensors in the mechanism.
- Automate the reed to increase smoothness and finishing of the cloth based on the design.
- Design the mechanism for operating the heddles for required mesh size required

based on the threads during wrap shed formation of the cloth.

Livelihood opportunities to the weavers can be improved through automated Looms. This helps in improving product quality and production rate, thereby resulting in balanced socio-economic development and inclusive growth of the sector.

17. Please give a detailed business plan/enterprise model/sustainability of the project.

Mission of the Project:
To serve the people who are under privileged in the society by providing training
Goal:
Identifying or selecting the 500 eligible women from rural areas providing training for preparing Yarn with color and color thread with different diameters and making the trainees to run the semi automatic looms. Making employment and self empowerment for the trainees. Each batch should be completed within six months.



18. Details of the beneficiaries (direct and indirect)

The target beneficiaries are rural women 500 which consist of SC community people and women Artisans located in the villages and surrounding areas. These target beneficiaries include 300 SC and 200 other rural women.
The SC community people and women Artisans located in the villages and surrounding areas can utilize the cotton crops and produce the yarns. Yarns produced can be marketed in and around the village. Using the yarns, natural colors can be used and different texture of the cloths

can be weaved using the loom

19. Details of Collaborators

Sl. No.	**Name and Address of the Collaborators**	***Purpose***
1.	Khadi village Industries commission,Rajendra nagar,Hyderabad	● The social objective of providing employment. ● The economic objective of producing saleable articles. ● The wider objective of creating self-reliance amongst the poor and building up of a strong rural community spirit.
2.	R.S. Textile, Secunderabad	Training of operating the looms and skilling of rural woman as artisans

20. Duration (months): 36

21. Budget Summary (in Rs):

Recurring Cost (in Rs): 86,15,480.00

Non-Recurring cost (in Rs): 26,66,000.00

Sl. No.	*Items*	*Budget (in Rs.)*			
		1st Year	*2nd year*	*3rd year*	*Total*
A.	*Recurring*				
1.	Manpower	12,20,160.00	12,20,160.00	12,20,160.00	36,60,480.00
2.	Consumables	5,50,000.00	4,00,000.00	3,00,000.00	12,50,000.00
3.	Travel	2,00,000.00	2,00,000.00	2,00,000.00	6,00,000.00
4.	Training Programme	3,00,000.00	3,00,000.00	3,00,000.00	9,00,000.00
5.	Other Costs	2,00,000.00	2,00,000.00	2,00,000.00	6,00,000.00
6.	Contingency	3,00,000.00	3,00,000.00	3,00,000.00	9,00,000.00
7.	Overheads	2,55,000.00	2,50,000.00	2,00,000.00	7,05,000.00
	Total (A)	30,25,160.00	28,70,160.00	27,20,160.00	86,15,480.00
B.	*Non Recurring*				
1.	Equipment	15,01,000.00	0	0	15,01,000.00
2.	Fabrication Costs	95,000.00	95,000.00	75,000.00	2,65,000.00
3.	*Construction Costs	9,00,000.00	0	0	9,00,000.00
	Total (B)	24,96,000.00	95,000.00	75,000.00	26,66,000.00
	Grand Total (A+B)	55,21,160.00	29,65,160.00	27,95,160.00	1,12,81,480.00

***The budget under construction cost is only for low cost structures like Common Facility Centre and/or renovation or refurbishing of existing space and not for construction of new buildings or structures. Approval of such grant is at sole discretion of DST and as per extant GFR norms.**

PART II: TECHNICAL DETAILS OF PROJECT

1. Introduction (under the following heads)

(a) Existing Natural Resource Endowment of the Target Area (to promote efficient and effective use of local and natural resources for improved livelihoods – give details of geographical area, climate, land use pattern & cropping patterns, availability of natural resources & raw materials etc.)

(b) Demographic details and Socio-economic profile – as per 2011 census (type of target beneficiaries total size of target group(s), % of SC/ST of total population in project area, details of social conditions, current occupations of the target beneficiaries, present average annual income, availability of basic amenities and facilities etc.)

(c) Brief Industrial Scenario of the target area (may refer to Industrial Profile of Districts by MSME)

(d) Indigenous Knowledge (IK)/Traditional Knowledge (TK), Skill and Practices and the problems identified (Community Knowledge and availability of IK skills/TK skills, Details of existing special skills/trades, including art, craft etc. of the target population)

(e) Details of the project implementation site/ Location map of the target area (as far as possible should be in the vicinity of the targeted population).

(f) Expertise available with proposed investigating group/institution for implementing the project.

The handlooms machines are simple in design which are operated manually with limited links and mechanisms. Most of the looms' mechanisms are controlled by hands and legs. The basic design of the loom is manufactured using wood. The productivity of the looms depends on the optimized movements and its operations based on time length. The powered looms have been originating during the decades increasing the productivity of the different clothes with different yarns. The traditional yarns produced at the rural areas are still emerging by varying the designs, natural colors and the end product. The shuttle or the filler carrier makes a mesh with the yarns to align the layers of yarn which are vertical and operated by the treadles with foot in the hand looms. The traditional techniques maintained in many of the rural areas are exhausting due to the demand for productivity and automation. The Products obtained have a large life when compared with the present fabrics. To save the traditional mechanisms used for weaving, they have to be optimized and mechanized using current trends in technology.

To minimize the design cost and manufacturing difficulties of complex textile machinery and equipment, 3D printing technology scales the design to create a scale model of its function module. Yarn or thread breakage in the production of fabric in looms is a significant issue in the manufacturing automation process. This is due to the difficulty and complexity of the real process of yarn tension testing, the composition and movement principle of the let-off and take-up mechanism, which are based on the origin of yarn tension. Breakage of yarn or thread in automated looms is fully detected and indicated.

2. Objectives (well defined, restricted 3-4 objectives – do not copy from the objectives of

the programme)

• To improve the socio-economic conditions of women artisans of SC population through S&T interventions in the age-old handloom industry of Pochampally.
• To promote research, development and adaptation of appropriate and relevant technologies for socioeconomic development of the target population.
• Skill development and technical capacity building of women artisans of SC in processing of fibers and product development.
• Creation of social enterprises in processing of handloom fibers and value-added products.

3. Interventions (Technologies) selected for development and/or dissemination, deployment, delivery along with justification

(a) Proposed Interventions with Details focusing on Technology development (development of new technology, new product/process) and/or Adaptive R&D (Location Specific Research & Technology Development) and/or Technology dissemination (Replication of successful models)].

(b) Relevance of the proposed interventions to the existing Micro & Small Enterprises and Artisan Units, Industrial clusters and augmentation of proposed technologies in development of existing clusters

(d) Details of proposed interventions and solutions for problems identified in IK/TK for strengthening the livelihoods.

(c) Details indicating how the project/proposed technologies will benefit the target population.

Sl. No.	**Interventions**	***Justification***
1.	Preparing yarns by semi automatic machine.	Training the rural women to make yarns from the cotton.
2.	Making of yarns prepared from the colored threads for direct utilization.	Training the rural women as artisans to make different types of yarns. The yarns are colored for direct supply to the industries.
3.	Utilization of natural colors for the yarns.	Training for dyeing of yarns using natural colors, to avoid the intrusion of artificial colors and improve the reliability of the garments.
4.	Making threads of different diameters for different garments and household needs.	Training for making different size yarns based on the garments and household requirements.
5.	Operation of a semi automatic loom.	The target beneficiaries will be trained to operate the semi automatic loom for weaving garments.

4. Methodology and Work Plan (under the following heads)

(a) Methodology (Give in detail all proposed project activities and describe the methodologies for running the STI Hub. Describe the innovative approach and technical methodology for carrying out the activities – the relation between project objectives and activities should be clear. The proposed activities may also include details on technology development, demonstration, dissemination and deployment etc)

The trained women as artisans will improve their livelihood conditions by supplying to the age-old handloom industries. By using suitable & relevant technologies in making yarn and weaving clothes, rural area people will be able to increase their productivity.This will uplift the socio-economic condition of people living in these areas.

The targeted beneficiaries are skilled in manual operation of the machinery used for yarning, dyeing of colors to the yarns and mixing of colors to make new colors and operation of looms.The manual looms will be modified as per the design considerations to make a semi

automatic loom for ease of operation reducing the strain of the operator during its operation. By promoting and adapting new, relevant technologies repetition of processes are eliminated. By improving the skill of artisans,they will be able to sustain employability and increase the marketability of their products.Skill among rural artisans can be improved by conducting various training sessions on newer technologies.

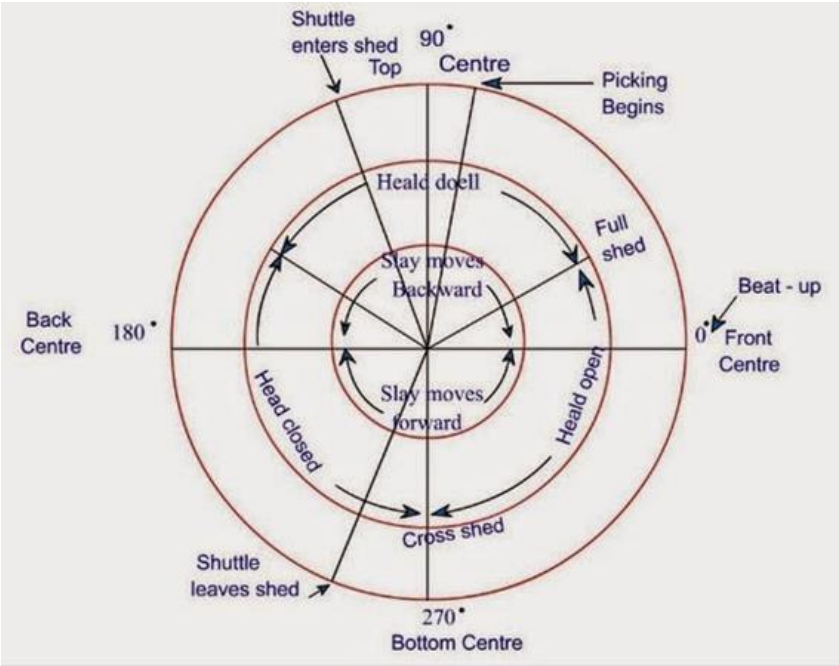
The products made by the trained target beneficiaries will be available in STI hub social enterprise.These products will be sent to different vendors near by the village,which will give a pay back for their livelihood.The traditional techniques used for making the products will be sustainable in the society.Under make in India the products can be made available in all the parts of country as apart of digital India.

Methodology

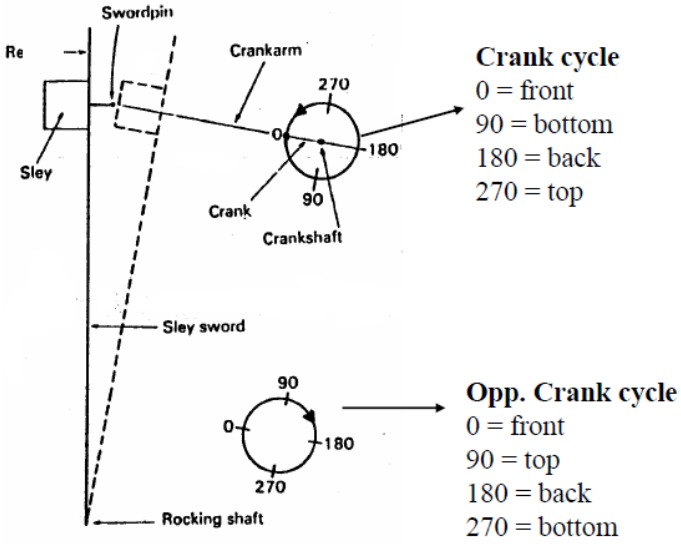
Artisans are facing too many difficulties like thread breakage, less productivity, more strain while using traditional looms for weaving of clothes. By using this automated loom artisans can overcome all these difficulties and in return they gain profit and work satisfaction.

Loom Time Diagram

The relative chronological sequences of various primary and secondary motions are expressed in terms of degree of crankshaft rotation in Loom timing diagram.The timings of most of the events in the loom cycle are governed by the position of the reed and thus the sley.

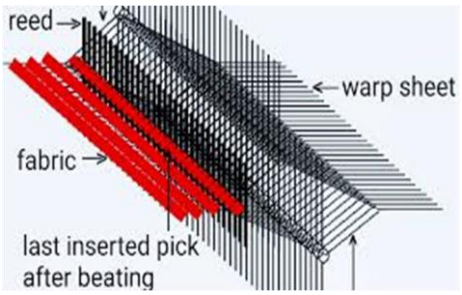


The arrow on the crank circle shows the usual direction of rotation of the crankshaft. When the crank and crank arm are in line, and the sley is in its most forward position.Looms are provided with a graduated disc on the crankshaft and a fixed pointer to make settings in relation to the angular position of the crankshaft.In modern looms with microprocessors, the main shaft position is displayed on a screen, but the setting principle remains same.



Methodology involves Implementation of design of fabrics by mechanism of shedding looms,Comparing the results of real traditional loom & designed loom.

1) Development of algorithms for Automated Looms:
The designed looms cannot work on their own; a proper algorithm for working model is to be designed, taking working mechanism considerations into account; the algorithm has to be included in the working of servo, stepper motors, and sensors in a step-by-step process to design a fabric or cloth in required condition. These algorithms are designed to meet the needs of the textile production process.
2) Modification of the Loom with attachments of stepper motors and sensors for mechanical operations;It is necessary to monitor the shedding, picking, and beating processes in order to ensure that they are carried out properly. In the event that a problem occurs during the manufacturing process, the microcontroller recognizes it and shuts off the operation. As a result of this benefit, it is possible to eliminate the need for regular system monitoring.
3) Design of fabrics are implemented by the mechanism of shedding looms. The development of loom technology is implemented in previous designs successfully for many years, but the designing of cloth or textile in different patterns and designs has been a problem for designer fabrics, it can be done easily to implement the design on clothes by this project, this process can be implemented by randomizing the process of shedding.



4) Study the behavior of the real Traditional Loom and Compare results with the designed loom
5) Study of an Automated loom made with attachments for automation of filler shoot and kinetic mechanism. The links will be treated bothas rigid, flexible and portable;
6) ExperimentalOutput to be implemented successfully
The output of the automated loom produces textiles in a timely and efficient manner. The designing process can also be included in this process, which is a unique feature when compared to other projects. With this proposed design, the user can easily assemble the attachments to the loom. It also helps to develop small-scale businesses.

The linear and rotational moments of the loom are controlled by stepper motors in order to wrap the cloth by roller.The required angular moments are done by servo motor for picking up the thread.For the detection of thread breakage the proximity sensors are used and shut down the system and give the alert of thread breakage.The separate shedding strings are used which can be operated by the control of the processor in making specific designs of the cloth.

(b) Time schedule of activities (in Gantt chart)

Activiteis	Months											
	0-3	2-3	4-6	9-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36
Establishing the STI HUB and Identification of the rural Women												
Basic Training												
Training to rural Women to prepare yarn and dyeing of yarn												
Training on handloom operation												
Supply of yarn to local market												
Training on Semi-Auto Loom												
Weaving of garments												
Training on different weaving												
Supply of yarn to small scale industry												
Supply garments to attain the demand												
Validation and Quality testing of garments												
Preparation of Documents												

(c) Organization of work elements

Sl. No	Component/Work Elements	Expected Start (Month/Year)	Expected Completion (Month/Year)	Deliverables
1.	Establishing the STI HUB and Identification of the rural Women	Jan 2023	Jan 2023	STI HUB for SC rural Women
2.	Basic Training	Feb 2023	Mar 2023	Training on basic Weaving
3.	Training to rural Women to prepare yarn and dyeing of yarn	Apr 2023	June 2023	Yarn preparation and dyeing
4.	Training on handloom operation	July 2023	Sept 2023	Handloom Training
5.	Supply of yarn to local market	Oct 2023	Dec 2023	Marketing
6.	Training on Semi-Auto Loom	Jan 2024	Mar 2024	Semi-Auto loom Training
7.	Weaving of garments	Apr 2024	June 2024	Training in weaving
8.	Training on different weaving	July 2024	Sept 2024	Training in different weaving techniques
9.	Supply of yarn to small scale industry	Oct 2024	Dec 2024	Marketing
10.	Supply garments to attain the demand	Jan 2025	June 2025	Marketing
11.	Validation and Quality testing of garments	July 2025	Sept 2025	Validation and Testing
12.	Preparation of Documents	Oct 2025	Dec 2025	Document preparation and submission

Please don't give baseline surveys, recruitment of project staff, purchase of equipment as activities or deliverables

5. Details/Mechanism for the involvement of SC/ST Population in the project.

The SC community people located in the villages and surrounding areas can utilize the cotton crops and produce the yarns. Yarns produced can be marketed in and around the village. Using the yarns, natural colors can be used and different texture of the cloths can be weaved using the loom

6. Indicate whether the project will help in maintaining environmental/ecological balances (if applicable).

The beneficiaries will be trained in using natural colors for dyeing and preparation of multi colors

using the natural colors. These natural colors are eco-friendly and non toxic. Environmental eco-balance is maintained since natural colors are used. This in turn will increase the life of the clothes. Livelihood opportunities to the weavers can be improved through automated Looms. This helps in improving product quality and production rate, thereby resulting in balanced socio-economic development and inclusive growth of the sector.

7. Give a brief description of the social and economic impact the project will create in the livelihood system of target beneficiaries and whether the STI Hub address the issues of Multidimensional Poverty.

The STI hub will record the experienced skills and traditional techniques for yarning, dyeing and looming of clothes. But many of the weavers are older and are struggling to operate the looms since the work is continuous and they get used to it. The yarns prepared by the weavers are given to the society in order to pay back for their livelihood. The rural women can be trained as artisans from their homes to make household products which are reusable and self sustainable to improve their livelihoods.

Semi automated looms will increase the livelihood of the weavers by increasing their productivity and saving the traditional method of weaving. This helps in improving product quality and production rate, thereby resulting in balanced socio-economic development and inclusive growth of the sector.

8. Details of self-employment/revenue generation through the project in long term/development of entrepreneurship (also indicate the additional income per annum through this project per beneficiary/family).

- Increased productivity with existing weaving machines and production output
- The Designing work can be optimized based on size of the loom.
- Even an inexperienced weaver can operate the proposed loom without any difficulty, it reduces the labor cost and maintenance cost.

9. Comment on the possibilities of the activity becoming self-sustainable / marketing / buy back arrangements /Micro Enterprise Development etc (give in terms of finite time including cost benefit analysis of the project) – Techno-economic viability of the project and its self-sustainability

A social enterprise is established under STI hub. All products manufactured by beneficiaries are made available in this enterprise.These products can be used for regular house-hold and domestic purposes.They are self-sustainable and more reusable compared to plastics. After establishing STI hub and identifying rural women, training will be given for them on preparation of yarn & dyeing of yarn for four months. The training on handloom operation will be conducted for three months.The yarn made by women artisans are sent to the local market.Based on the demand, the market will be expanded. Once they are familiar with the operation of traditional looms,training sessions will be conducted to operate semi-auto looms for about three months to increase the productivity.The garments made by this weaving process are marketed and yarns are supplied for small scale industries.

10. Details of Trainings and STI Capacity Building Programmes

a. Training and Awareness Programme for STI Capacity Building etc.

b. Training and Awareness Programme for demonstration, dissemination and deployment of selected technologies.

Technical Skill Training will be given to the beneficiary to operate the Automated looms. In order to achieve the outcome, the following training and awareness programme are planned to conduct

- Training to rural women to prepare yarn and dyeing of yarn
- Training on handloom operation
- Training on Semi-Auto Loom
- Training on different weaving
- Awareness training on marketing the yarns and clothes
- making of household products and supplying

11. Parameters to be used for evaluation of the impact

(in terms of expected output and outcomes – See Annexure VI for indicators for monitoring)

(a) Output Indicators

The following indicators and numbers are given tentatively as expected

Sl. No	Indicators	Numbers
1	Technologies/ techniques/ tools to be deployed (*existing technologies*)	2
2	Technologies to be modulated and deployed (*adaptive R&D*)	1
3	Technologies that can be transferred	1
4	Paper published, if any Popular articles, awareness leaflets, pamphlets developed and published	1
5	Short duration user friendly video/photo gallery produced using available handy cameras for technology popularization	1
6	Beneficiaries covered under the Project (Numbers with gender wise percentages: District wise, age groups wise)	500(300 - SC Community and 200 Others)
7	Awareness, Training and skill development Programmes Conducted with number of male and female participants	4
8	Manpower to be trained- total with gender wise percentages	500(60% - women & 40% men)
9	Youth to be employed- total with gender wise percentages	500(60% - women & 40% men)
10	Beneficiaries directly using the facilities to be created	300
11	Beneficiaries indirectly using the facilities to be created	200
12	HHs*(households)* to be involved	300

Outcome Indicators (expected at the end of project implementation period)

The following indicators and numbers are given tentatively as expected

Sl. No	Indicators	Numbers
1	Livelihood Diversification (Farm and Non-Farm - *indicate the diversified trades*)	50%
2	Increase in household income due to project interventions (give %)	70%-90%
4	Increase in livelihood/ employment opportunities in different areas (list the areas/field and give the number of entrepreneurs)	50%-60%
5	Improved linkages with market/ enterprises	75%
6	Community's empowerment (*technology user group formed; saving cum credit group; health improvement etc*.)	80%-90%
7	Database/Documentation of livelihood system, indigenous resources and knowledge capacity and aspiration.	80%

12. Linkages/Collaborations with R&D institutions/S&T Based Knowledge Institutions (NGOs) etc.

Name of Organization	Role in project implementation
Khadi village Industries commission,Rajendra nagar,Hyderabad	Building up of a reserve of raw materials and implements for supply to producers, creation of common service facilities for processing of raw materials as semi-finished goods and provisions of facilities for marketing of KVI products apart from organization of training of artisans engaged in these industries and encouragement of co-operative efforts amongst them.
R.S. Textile, Secunderabad	Training of operating the looms and skilling of rural woman as artisans

13. Details on the likely impact of the Project.

- Preserving the historical, science, heritage and cultural narrative of the land.
- Rural women artisans will be trained to operate semi-auto loom.They can be able to acquire the skill.
- An inexperienced weaver can operate the proposed loom without any difficulty, it reduces the labor cost and maintenance cost.
- Incorporating latest and emerging technologies to develop students and youngsters for handling the future of weaving technology.
- Increased productivity with existing weaving machines and production output
- The advancement in loom technology is improvised by embedding microelectronics.
- The Designing work can be optimized based on size of the loom.
- Satisfaction of weaver using the automated loom which avoids the repeated work.

14. Details of ongoing/completed projects of the investigator(s) during the last 5 years

Sl. No.	Name of the project and Reference No	Funding Agency/Division	Cost & Duration	Status
1	Microsoft – AI for Earth Grant	Microsoft India	100 Lakhs & 3 Years	Ongoing
2	Margadarshan Initiative	AICTE	50 Lakhs & 3 Years	Ongoing
3	Student club under the scheme for Promoting Interests, Creativity and Ethics among Students (SPICES)	AICTE	3 Lakhs & 1 Year	Ongoing

15. Details of ongoing/completed projects of the Institute during the last 5 years

Sl. No.	Name of the project and Reference No	Funding Agency/Division	Cost & Duration	Status
1.	Margdashan Initiative	AICTE-Margdarshak Cell (Margdarshan Scheme	50.00000	Ongoing
2.	AI For Earth	Microsoft-INDIA	100.0000	Ongoing
3.	Skill and Personality Development Programme Center for SC/ ST Students SPDC	AICTE - SPDC	15.13400	Ongoing
4.	Advanced Training Program on Teaching	AICTE	0.93000	Completed
5.	Design and Development of Electrocoagulation unit for the processing of Electroplating waste water	AICTE-RPS	17.50000	Ongoing
6.	Performance and Vibration Characterisation of Rubber seed oil Methyl Ester(RSME) Bio-Diesel based VCR Engine Mounted on AI6O51-SIC-RUBBER MOUNTS	AICTE,RPS	11.90196	Ongoing
7.	Finite Element Analysis using ABAQUS	AICTE-STTP	3.15000	Completed
8.	Teaching-Pedagogical Intelligence	AICTE, FDP	4.34000	Completed
9.	Modernization of Microwave Engineering lab	AICTE, MODROB	5.59216	Ongoing
10.	Advanced Training Program on Teaching	AICTE,ISTE	3.00000	Completed
11.	Advanced Training Program on Teaching	AICTE	0.93000	Completed
12.	Advanced Training Program on Teaching	AICTE	0.93000	Completed
13.	Margdashan Initiative	AICTE-Margdarshak Cell (Margdarshan Scheme	50.00000	Ongoing

14.	Scheme for promoting interests, creativity and ethics among students(SPICES)	AICTE-SPICES	1.00000	Ongoing
15.	Advanced Training Program on Teaching	AICTE	0.93000	Completed
16.	Solar Desalination for Nano and Micro Hierarchical Structures	JNTUH,CRS-TEQIP III	2.85000	Completed
17.	Software defined Radio Lab	AICTE, MODROBS	12.71000	Completed
18.	Big Data Analytics using R, Hadoop and Spark	AICTE, FDP	3.90000	Completed
19.	Research Methodology in Engineering and Technical writing using LaTex	AICTE, STTP	2.92000	Completed
20.	LabVIEW for Measuremnt and Data Analysis	AICTE, STTP	2.73000	Completed
21.	Recent Trends in Mineral Exploration	SCCL	0.22500	Completed
22.	Recent Trends in Mineral Exploration	MEAI	0.50000	Completed
23.	Engineering Drawing - An Effective Teaching Methodology	AICTE, ISTE	3.00000	Completed
24.	Unnat Bharat Abhiyaan	MHRD	0.50000	Completed
Total			**294.67312**	

PART III: BUDGET

BUDGET ESTIMATES – SUMMARY*

(The budget under different heads will be sanctioned as per the extant norms of DST)

Sl. No	***Item***	***Budget***			
		1st Year	***2nd Year***	***3rd Year***	***Total***
A	RECURRING				
1	Manpower	12,20,160.00	12,20,160.00	12,20,160.00	36,60,480.00
2	Consumables	5,50,000.00	4,00,000.00	3,00,000.00	12,50,000.00
3	Travel	2,00,000.00	2,00,000.00	2,00,000.00	6,00,000.00
4	Training Programs	3,00,000.00	3,00,000.00	3,00,000.00	9,00,000.00
5	Other Costs	2,00,000.00	2,00,000.00	2,00,000.00	6,00,000.00
6	Review Meeting by DST	2,50,000.00	2,50,000.00	2,50,000.00	7,50,000.00
7	Contingencies	3,00,000.00	3,00,000.00	3,00,000.00	9,00,000.00
8	Institutional Overheads	2,55,000.00	2,50,000.00	2,00,000.00	7,05,000.00
B	NON RECURRING				
1	Permanent Equipment	15,01,000.00	0	0	15,01,000.00
2	Fabrication of Equipment	95,000.00	95,000.00	75,000.00	2,65,000.00
3	Construction Costs	9,00,000.00	0	0	9,00,000.00
TOTAL		57,71,160.00	32,15,160.00	30,45 ,160.00	1,20,31,480.00

*In case of collaboration with different institutions, separate budget requirements should be furnished along with formal agreement from the collaborating institutions/scientists. Detailed justification needs to be provided for all the budget heads as per the break up given below.

A. RECURRING

1. BUDGET FOR MANPOWER

Sl. No.	***Designation***	***Budget (Rs)***			
		1st Year	***2nd Year***	***3rd Year***	***Total***
1.	Project Associate-I (2 No's) & Project Assistant (1 No.)	12,20,160.00	12,20,160.00	12,20,160.00	36,60,480.00
TOTAL		12,20,160.00	12,20,160.00	12,20,160.00	36,60,480.00

(Staff recruited for a project should be paid as per the norms and guidelines of the DST. The justification should contain the work allocation/functions of each project staff. Please refer to different OMs regarding salary structure of various categories of project staff available on DST Website)

2. BUDGET FOR CONSUMABLES

Sl. No	***Consumables***	***Budget (Rs)***			
		1st Year	***2nd Year***	***3rd Year***	***Total***
1.	Yarn	2,50,000.00	1,50,000.00	1,50,000.00	5,50,000.00
2.	Weaving Comb, Needles	30,000.00	30,000.00	15,000.00	75,000.00
3.	Warp Threads	30,000.00	30,000.00	15,000.00	75,000.00
4.	Warping Frame	40,000.00	40,000.00	20,000.00	1,00,000.00
5.	Packing and delivery Materials	1,00,000.00	1.00,000.00	50,000.00	2,50,000.00
6.	Stationeries, Printouts, File Folders, etc	1,00,000.00	50,000.00	50,000.00	2,00,000.00
TOTAL		5,50,000.00	4,00,000.00	3,00,000.00	12,50,000.00

(Detailed break up of consumables should be given)

3. BUDGET FOR TRAVEL

Sl. No	***Purpose***	***Budget***			
		1st Year	***2nd Year***	***3rd Year***	***Total***
1.	Project Logistics	1,00,000.00	1,00,000.00	1,00,000.00	3,00,000.00
2.	Field Activities	1,00,000.00	1,00,000.00	1,00,000.00	3,00,000.00
TOTAL		2,00,000.00	2,00,000.00	2,00,000.00	6,00,000.00

4. BUDGET FOR TRAININGS

Sl. No	***Description of Trainings/Awareness***	***Budget***			
		1st Year	***2nd Year***	***3rd Year***	***Total***
1.	Training to rural Women to prepare yarn and dyeing of yarn	1,50,000.00	-	-	1,50,000.00
2.	Training on handloom operation	1,50,000.00	-	-	1,50,000.00
3.	Training on Semi-Auto Loom	-	1,50,000.00	1,50,000.00	3,00,000.00
4.	Training on different weaving	-	1,50,000.00	1,50,000.00	3,00,000.00
TOTAL		3,00,000.00	3,00,000.0	3,00,000.00	9,00,000.00

5. BUDGET FOR OTHER COSTS

Sl. No	***Item***	***Budget***			
		1st Year	***2nd Year***	***3rd Year***	***Total***
1.	Field Trials	1,00,000.00	1,00,000.00	-	2,00,000.00
2.	Technology Testing	1,00,000.00	1,00,000.00	50,000.00	2,50,000.00
3.	Deployment	-	-	1,50,000.00	1,50,000.00
TOTAL		2,00,000.00	2,00,000.00	2,00,000.00	6,00,000.00

(This head will cover costs for technology testing, field trials, deployment, patents etc)

5. REVIEW MEETINGS BY DST

Sl. No	***Description of Trainings***	***Budget***			
		1st Year	***2nd Year***	***3rd Year***	***Total***
1.	Travel	1,20,000.00	1,20,000.00	1,20,000.00	3,60,000.00
2.	Accommodation, Food, etc	60,000.00	60,000.00	60,000.00	1,80,000.00
3.	Field visit	70,000.00	70,000.00	70,000.00	2,10,000.00
TOTAL		2,50,000.00	2,50,000.00	2,50,000.00	7,50,000.00

(Tentative budget to be proposed for two meetings a year – should cover the travel cost, accommodation and local field visits of 6-8 experts)

6. BUDGET FOR CONTINGENCIES

Sl. No	***Item***	***Budget***			
		1st Year	***2nd Year***	***3rd Year***	***Total***
1.	Economic Recession, Natural Disaster, Books, Postal & Courier Expenses, etc	3,00,000.00	3,00,000.00	3,00,000.00	9,00,000.00
TOTAL		3,00,000.00	3,00,000.00	3,00,000.00	9,00,000.00

(Should be for unforeseen costs)

7. BUDGET FOR OVER HEADS

Sl. No	***Item***	***Budget***			
		1st Year	***2nd Year***	***3rd Year***	***Total***
1.	Lab Usage, Internet, Electricity, etc	2,55,000.00	2,50,000.00	2,00,000.00	7,05,000.00
TOTAL		2,55,000.00	2,50,000.00	2,00,000.00	7,05,000.00

B. NON RECURRING

BUDGET FOR PERMANENT EQUIPMENT/STRUCTURES

Sl. No.	***Item***	***Budget***			
		1st Year	***2nd Year***	***3rd Year***	***Total***
1.	Equipment	15,01,000.00	0	0	15,01,000.00
2.	Fabrication Costs	95,000.00	95,000.00	75,000.00	2,65,000.00
3.	*Construction Costs	9,00,000.00	0	0	9,00,000.00
TOTAL		24,96,000.00	95,000.00	75,000.00	26,66,000.00

- Detailed justification for each and every item of equipment should be given
- The construction cost should also include the costs towards establishment of STI Hub at Host Institute/CFC for trainings/demonstrations etc (It is expected that the Host Institute should provide space for STI Hub – Refurbishing costs for existing structure may be supported)
- Bill of materials/estimate for fabrication and construction cost should be provided

***The budget under construction cost is only for low cost structures like Common Facility Centre and/or renovation or refurbishing of existing space and not for construction of new buildings or structures. Approval of such grant is at sole discretion of DST and as per extant GFR norms.**

PART IV: DETAILS OF THE IMPLEMENTING INSTITUTE

1. Description of the implementing agency (ies)

(In case of Voluntary Organizations/NGOs and Private Institutes please enclose copies of Registration Certificate/Trust Deed, Memorandum of Association including By-laws and Mandate, Audited statement of accounts for the last three years, Annual Report including activity profile for last three years.)

Malla Reddy Engineering College (Autonomous) – MREC, is one of the top notch and highly reputed engineering colleges in Hyderabad, Telangana. MREC is part of Malla Reddy Group of Institutions (MRGI), founded by Sri. Ch. Malla Reddy, currently Hon'ble Minister, Labour and Employment, Factories and Skill Development, Govt. of Telangana State. The college is situated in a serene, lush green environment on Kompally- Bahadurpally Road, opposite Forest Academy, Medchal-Malkajgiri District, Telangana State and adjacent to Urban Forest. Established in the year 2002, the college is approved by AICTE and affiliated to JNTUH. The college offers 12 UG programmes and 7 PG programmes for the students with intake in various specialisations.

The college has UGC Autonomous by Govt. of India status for both Engineering and Management Programs. The college is accredited by National Board of Accreditation in Tier-I and NAAC with 'A++' Grade (Cycle-III) and is also recognized under UGC 2f & 12(B) Status. The college is an ISO 9001:2008 certified Institution.

The Centre of Excellence addresses the need of Skill development training to the students.

Students are trained in certification courses of Microsoft - Java, Python, Amazon Web Services (AWS), Database and CISCO - Introduction to Networks. The phenomenal reforms undertaken by the college made it the leader in terms of placements. Year after year the placement record is getting improved making the college break its own records set by it earlier. In the year 2020-21, 92% of the students got placed while 94% of the students in 2021-22 batch have been placed till date. Well qualified, committed and dedicated Training and Placement officers at MREC TPO strived hard to bring nearly 132 companies to the college for recruitment. Some of the Companies visited: Microsoft, Amazon, Morgan Stanley, Pay Pal, Commvault, Qualcomm, Experian, Toshiba, Hyundai, Dassault Systems, Boeing, etc.

MREC has 5 Research & Development centres, 2 Workshops and 2 Data centres. IBM lab,

HP DevOps lab and CISCO lab are established in association with the leading industry giants. The students are trained in the emerging technologies like Google cloud, Salesforce, RedHat Linux, Campus Connect, LabVIEW, STAAD Pro, CREO, ANSYS, HFSS Communication Design Suite Software, CADENCE, O-PITBLAST, STRAYOS, etc., to fill the gap between the academics and the industry requirements.

The total number of computers available for the student support activities on campus is 2130 which results in 2:1 student computer ratio. 14 Digital Touch Screens across the campus help the students present their content in an attracting style. 24x7 Wi-Fi facility with 70+ access

points covers the entire campus with high speed internet connectivity of about 1 Gbps. Two Auditoriums with 2500 and 300 seating capacity are available for actively conducting programmes related to students and faculty members.

2. Type of organization:

Type	*Implementing Org.*	*Collaborator*
Academic Institution	Malla Reddy Engineering College, Main Campus, Maisammaguda, Medchal-Malkajagiri, Secunderabad - 500100, Telangana State.	
Research Organization	-	-
S&T Council	-	-
Voluntary Organization	-	-
Other (please specify)	-	-

3. Expertise available with the proposed investigating group/institution for implementing the project (describe briefly in not more than one page)

The department has an experienced core team to implement the project

S.No	Name of the Faculty	Field Expertise	Experience (yrs)
1	Dr. A. Raveendra	Production Engineering	20
2	Dr. N. Rishi Kanth	CIM	13
3	Dr. Halesh Koti	Machine Design	20
4	Dr. Tulasi Radha	Machine Design	14
5	Dr. T. Venkata Deepthi	CIM	13
6	Dr. I.S.N Satish Indury	Materials Engineering	10(Indian Navy)
7	Dr. Prasanth	IEM	
8	Dr. T. Zaheer Ahmed	CIM	14
9	Dr. Uffaith Hussain Khadri	Mechanical System Design	08

10	Dr. A. Paul Praveen	Design Engineering	04

4. Infrastructure available land/building (including equipment).

Laboratories:
CAD/ CAM LAB:
Software : ANSYS, CREO, AUTOCAD, MATLAB
Equipment:
CNC –TURNING, CNC MILLING MACHINE
Center of Excellence: Additive Manufacturing

3D Printers Specifications

	Printer-1	Printer-2
Model	Hydra 200 Pro	Fab X Plus
Build Volume	200 * 200 * 200 mm3	150 * 150 * 150 mm3
Bed Temperature	70^0 C to 140^0C	70^0C
Print Speed	20 – 80 mm/s	20 – 60 mm/s
Nozzle size	0.4mm	0.4mm
Connectivity	USB, SD Card	USB, SD Card
Max. Temp.	300^0 C	240^0 C
File Type	STL	STL
Material	PLA,ABS,TPU	PLA
Slicing Software	Cura	Cura
Filament Diameter	1.75mm	1.75mm

5. Whether the organization is implementing EAT Module under PFMS?
Yes

ANNEXURE-III

BIODATA OF PRINCIPAL INVESTIGATOR

A. Name: Dr.A.Ramaswami Reddy

B. Date of Birth : 08.05.1977

C. Institution : Malla Reddy Engineering College

D. Whether belongs to SC/ST : No

E. Academic and professional career:
(From Graduation to highest qualification level indicating subject and area of specialization – Enclose copy of certificate of highest qualification):

Professional career:

F. Award/Prize/Certificate etc. won by the investigator:

G. Publication (Numbers only)
Details of :
Papers:
Books, General Articles, Patents if any

H. List of Completed/Ongoing and Submitted projects

Sl. No.	Name of the project and Reference No	Funding Agency/Division	Cost & Duration	Status
1	Microsoft – AI for Earth Grant	Microsoft India	100 Lakhs & 3 Years	Ongoing
2	Margadarshan Initiative	AICTE	50 Lakhs & 3 Years	Ongoing
3	Student club under the scheme for Promoting Interests, Creativity and Ethics among Students (SPICES)	AICTE	3 Lakhs & 1 Year	Ongoing

4		AICTE FDP		Ongoing
5	Third Eye for Blind	Amrith Grand Challenge Program	10 Lakhs	Submitted

CC000212

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

KAKINADA - 533 003, ANDHRA PRADESH, INDIA

Mr. Ramaswami Reddy A

S/o Bhikshalu Reddy

having fulfilled the academic requirements in August 2015

has this day been admitted by the Executive Council to the Degree of

Doctor of Philosophy

(Computer Science & Engineering)

Topic : Efficient MRF Models For Diagnosis Of Brain Abnormality Based On Magnetic Resonance Images.

Given under the Seal of the University

HTNo : 10022P0517

Date : 19 November, 2015

VICE-CHANCELLOR

ANNEXURE-III

BIODATA OF CO INVESTIGATOR (S)

- Name : Dr. S. Udaya Bhaskar
- Date of Birth : 14-04-1981
- Institution : Malla Reddy Engineering College
- Whether belongs to SC/ST : SC
- Academic and professional career:

S. No.	Degree	Specialization
1	BE	Mechanical Engineering
2	M.Tech	Machine Design
3	Ph.D	Mechanical Engineering

(From Graduation to highest qualification level indicating subject and area of specialization – Enclose copy of certificate of highest qualification):

Professional career : Teaching and Research

- Award/Prize/Certificate etc. won by the investigator: 07
- Publication (Numbers only) : 21

Details of Papers, Books, General Articles, Patents, if any

- List of Completed/Ongoing and Submitted Projects

Sl. No.	Name of the project and Reference No	Funding Agency/Division	Cost & Duration	Status

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

HYDERABAD - 500 085, TELANGANA STATE, INDIA

TS 1438030

H.T No.: 0903PH1534

Mr. Sapa Udaya Bhaskar

S/o. Suryanarayana

having fulfilled the academic requirements in *February - 2020*
has this day been admitted by the Executive Council to the Degree of

Doctor of Philosophy

Mechanical Engineering

Topic: "Non Linear Analysis of Multilobe Journal bearings for Various Surface Roughnesses".

Given under the Seal of the University

Date: 16-10-2020

DIRECTOR OF EVALUATION

REGISTRAR

VICE CHANCELLOR

PC No
320001501

ANNEXURE-IV

BIODATA OF CO INVESTIGATOR (S)

- Name : Dr. Venkata Rathnam Ukkurthi
- Date of Birth : 11.04.1987
- Institution : Malla Reddy Engineering College
- Whether belongs to SC/ST : No
- Academic and professional career:

S. No.	Degree	Specialization
1	B.Tech	Civil Engineering
2	M.Tech	Geotechnical Engineering
3	Ph.D	Civil Engineering

(From Graduation to highest qualification level indicating subject and area of specialization – Enclose copy of certificate of highest qualification):

Professional career : Teaching and Research

- Award/Prize/Certificate etc. won by the investigator: Nil
- Publication (Numbers only) : 8

Details of Papers, Books, General Articles, Patents, if any

- List of Completed/Ongoing and Submitted Projects

Sl. No.	Name of the project and Reference No	Funding Agency/Division	Cost & Duration	Status
		Nil		

Sl. No.: 007975
PT

SRI VENKATESWARA UNIVERSITY

శ్రీ వేంకటేశ్వర విశ్వవిద్యాలయం

ఫాకల్టీ ఆఫ్ ఇంజినీరింగ్
Faculty of Engineering

వెంకటరత్నం ఉక్కుర్తి

పి వెంకటేశ్వర్లు గారి కుమారుడు కు

ఈ విశ్వవిద్యాలయం నుండి క్రింద సూచించిన విధంగా అతను పట్టాకు
నిర్దేశించిన పరీక్షలో ఉత్తీర్ణత పొందినందుకు

డాక్టర్ ఆఫ్ ఫిలాసఫి

పట్టా ప్రదానానికి అర్హత పొందినట్లు ధృవీకరించడమైంది.

This is to certify that

Venkatarathnam Ukkurthi

Son of V Venkateswarlu

has been admitted to the Degree of

Doctor of Philosophy

having been certified by duly appointed Examiners
to be qualified to receive the same at the Examinations
prescribed therefor as hereunder:

DEPARTMENT OF STUDY : **Civil Engineering**

SUBJECT OF THE THESIS : "Strength and Compressibility Characteristics of Compacted Soils"

YEAR : **2021**

విశ్వవిద్యాలయ అధికార ముద్రతో జారీ చేయడమైంది.
Given under the Seal of the University

తిరుపతి / *Tirupati*
తేది / *Date* : 22 FEB 2021

ఉపకులపతి
Vice – Chancellor

ANNEXURE-IV

BIODATA OF CO INVESTIGATOR (S)

A. Name: Dr.N.Manikanda Devarajan

B. Date of Birth : 05.12.1980

C. Institution : Malla Reddy Engineering College

D. Whether belongs to SC/ST : No

E. Academic and professional career:
(From Graduation to highest qualification level indicating subject and area of specialization – Enclose copy of certificate of highest qualification):

S. No.	**Degree**	**Specialization**
1	B.E.	Electronics and Communication Engineering
2	M.E.	Computer and Communication
3	Ph.D	Electronics and Communication Engineering

Professional career: Teaching and Research

F. Award/Prize/Certificate etc. won by the investigator: Nil

G. Publication (Numbers only) :26
Details of Papers, Books, General Articles, Patents if any

H. List of Completed/Ongoing and Submitted projects

Sl. No.	Name of the project and Reference No	Funding Agency/Division	Cost & Duration	Status
1.	Stroke Analysis through the detection of Brain Tumors using CNN Architecture	SERB, SRG	Rs.18,52,050/-	Submitted
2.	IoT Based Saline Bottle for HealthCare	BIRAC- Amrit Grand Challenge Program	Rs.10,00,000/-	Submitted

Anna University

PROGRESS THROUGH KNOWLEDGE

Reg.No.710705S1013/RG

The Syndicate of the Anna University hereby makes known that **MANIKANDA DEVARAJAN N** *has been admitted to the* **DEGREE OF DOCTOR OF PHILOSOPHY** *under the* ***Faculty of Information and Communication Engineering****, having been certified by the duly appointed examiners to be qualified to receive the same in the year* **2019**. *The degree has been awarded in compliance with the* ***"University Grants Commission, Regulations 2009"***.

Title of the Thesis:

CERTAIN INVESTIGATIONS ON RECONFIGURABLE LOW POWER ARCHITECTURE FOR OFDM WITH NOISE SUPPRESSION

Given under the seal of the University

Chennai 600025
India
December 2019

Controller of Examinations

Registrar

Vice-Chancellor

ANNEXURE-IV

BIODATA OF CO INVESTIGATOR (S)

- Name : Dr. T.Venkata Deepthi
- Date of Birth : 22.01.1983
- Institution : Malla Reddy Engineering College
- Whether belongs to SC/ST : No
- Academic and professional career:

S. No.	Degree	Specialization
1	BE	Mechanical Engineering
2	ME	Computer Integrated Engineering
3	Ph.D	Mechanical Engineering

(From Graduation to highest qualification level indicating subject and area of specialization – Enclose copy of certificate of highest qualification):

Professional career : Teaching and Research

- Award/Prize/Certificate etc. won by the investigator: Nil
- Publication (Numbers only) : 10

Details of Papers, Books, General Articles, Patents, if any

- List of Completed/Ongoing and Submitted Projects

Sl. No.	Name of the project and Reference No	Funding Agency/Division	Cost & Duration	Status
		Nil		

KONERU LAKSHMAIAH EDUCATION FOUNDATION

(Deemed to be University)

Estd. u/s. 3 of the UGC Act, 1956
NAAC Accredited "A++" Grade

Aadhaar/Passport/Citizenship. : 4689 3536 6326

Faculty of Mechanical Engineering

Sl.No. : 125057

Regd No. : 13307006

By the authority of Board of Management

This is to certify that

Venkata Deepthi T

has been duly conferred the degree of

Doctor of Philosophy

he / she having been declared to be qualified to receive the same

Given under the seal of the University this day of Thirty First December Two Thousand and Twenty

Thesis Title: *Seru System for Productivity Enhancement and Sustainable Planning*

Vice - Chancellor

ANNEXURE-IV

BIODATA OF CO INVESTIGATOR (S)

A. Name : Dr. P. MARIMUTHU

B. Date of Birth : 11.06.1977

C. Institution : Malla Reddy Engineering College

D. Whether belongs to SC/ST : No

E. Academic and professional career :

S. No.	Degree	Specialization
1	BE	Electrical and Electronics Engineering
2	ME	Power Systems Engineering
3	Ph.D	Electrical Engineering

(From Graduation to highest qualification level indicating subject and area of specialization – Enclose copy of certificate of highest qualification):

Professional career : Teaching and Research

F. Award/Prize/Certificate etc. won by the investigator: Nil

G. Publication (Numbers only) : 30
Details of Papers, Books, General Articles, Patents if any

H. List of Completed/Ongoing and Submitted projects

Sl. No.	Name of the project and Reference No	Funding Agency/Division	Cost & Duration	Status
		Nil		

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

HYDERABAD - 500 085, TELANGANA STATE, INDIA

TS 703407

H.T No.: 0803PH0723

Mr. Marimuthu P

S/o. S Ponnusamy

having fulfilled the academic requirements in *February, 2017*

has this day been admitted by the Executive Council to the Degree of

Doctor Of Philosophy

Electrical And Electronics Engineering

Topic : "Improvement of Dynamic Performance of Multi Area Based Hydrothermal System Under Deregulated Environment".

Given under the Seal of the University

Date:21-04-2017

DIRECTOR OF EVALUATION | REGISTRAR | VICE CHANCELLOR

460614111247

PC No
317000557

ANNEXURE-IV

BIODATA OF CO INVESTIGATOR (S)

- Name: Ms. Singapati Chakra Sireesha
- Date of Birth: 28-08-1985
- Institution: MallaReddy Engineering College (Autonomous)
- Whether belongs to SC/ST: No
- Academic and professional career: Professional Career

(From Graduation to highest qualification level indicating subject and area of specialization – Enclose copy of certificate of highest qualification):

S. No.	Degree	Specialization
1	B. Tech	Mechanical Engineering
2	M. Tech	Advanced Manufacturing systems

- Professional career: Teaching and Research

Award/Prize/Certificate etc. won by the investigator: 02

- Publication (Numbers only) : 09

Details of Papers, Books, General Articles, Patents if any

H. List of Completed/Ongoing and Submitted projects

Sl. No.	Name of the project and Reference No	Funding Agency/Division	Cost & Duration	Status
		Nil		

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

HYDERABAD - 500 085, ANDHRA PRADESH, INDIA

RF 353814

311000336

430001102377 College Code: 01 (JNTUCE(AUTONOMOUS), HYD)

Ms. Singapati Chakra Sireesha

D/o Mr. S Ramachandraiah

having fulfilled the academic requirements and passed the examination held during *April - 2011* in *First Class With Distinction* has this day been admitted by the Executive Council to the Degree of

Master of Technology

Advanced Manufacturing Systems

Given under the Seal of the University

H.T.No:08014D3316

Date: 07-05-2012

DIRECTOR OF EVALUATION | REGISTRAR | VICE - CHANCELLOR

CERTIFICATE FROM THE INVESTIGATORS

It is certified that

1. We agree to abide by the terms and conditions of the DST grant.
2. We did not submit this or a similar project proposal elsewhere for financial support.
3. We have explored and ensured that equipment and basic facilities will actually be available as and when required for the purpose of the project. We shall not require financial support under this project, for procurement of these items.
4. We undertake that spare time on permanent equipment will be made available to other users.
5. The proposed equipment is not available with the Host Institution
6. In case the Principal Investigator (PI) leaves the Institution, the Co-Investigator (Co-I) will assume the charge of the Investigator for Competing the Project with prior approval of DST.
7. We understand that shifting of the sanctioned project from one institution to other institution due to change of the institution by the principal investigator/co-investigators is not allowed and is at sole discretion of DST, subject to submission of No Objection Certificate from the Host Institution by the PI.

We have enclosed the following materials.

Duly filled application form (complete with all Annexure)	
valid Registration Certificate/Trust Deed, MOA with Bye Laws, Annual reports & audited accounts of the organization for previous 3 years (only for NGOs)	
Letter of Support and tie up with S&T institutions – Mandatory for NGO'S	
Endorsement from Head of Institute and Certificate from Investigators (original)	

1. Signature of Principal-Investigator with date
   Place : Hyderabad

2. Signature of Co-Investigator with date
   Place : Hyderabad

   i) 13/8/2022 ii) 13/8/2022 iii) 13/8/2022

   iv) 13/8/22 v) 13/8/22 vi) 13/8/22

ANNEXURE – V

POLICY ON CONFLICT OF INTEREST FOR REVIEWER & COMMITTEE MEMBER or APPLICANT or DST OFFICER ASSOCIATED/ DEALING WITH THE SCHEME/ PROGRAM OF DST

Issues of Conflicts of Interest and ethics in scientific research and research management have assumed greater prominence, given the larger share of Government funding in the country's R & D scenario. The following policy pertaining to general aspects of Conflicts of Interest and code of ethics, are objective measures that is intended to protect the integrity of the decision making processes and minimize biasness. The policy aims to sustain transparency, increase accountability in funding mechanisms and provide assurance to the general public that processes followed in award of grants are fair and non-discriminatory. The Policy aims to avoid all forms of bias by following a system that is fair, transparent and free from all influence/ unprejudiced dealings, prior to, during and subsequent to the currency of the programme to be entered into with a view to enable public to abstain from bribing or any corrupt practice in order to secure the award by providing assurance to them that their competitors will also refrain from bribing and other corrupt practice and the decision makers will commit to prevent corruption, in any form, by their officials by following transparent procedures. This will also ensure a global acceptance of the decision making process adopted by DST.

Definition of Conflict of Interest:

Conflict of Interest means "any interest which could significantly prejudice an individual's objectivity in the decision making process, thereby creating an unfair competitive advantage for the individual or to the organization which he/she represents". The Conflict of Interest also encompasses situations where an individual, in contravention to the accepted norms and ethics, could exploit his/her obligatory duties for personal benefits.

Coverage of the Policy:

i. The provisions of the policy shall be followed by persons applying for and receiving funding from DST, Reviewers of the proposal and Members of Expert Committees and Programme Advisory Committees. The provisions of the policy will also be applicable on all individuals including Officers of DST connected directly or indirectly or through intermediaries and Committees involved in evaluation of proposals and subsequent decision making process.

ii. This policy aims to minimize aspects that may constitute actual Conflict of Interests, apparent Conflict of Interests and potential Conflict of Interests in the funding mechanisms that are presently being operated by DST. The policy also aims to cover, although not limited to, Conflict of interests that are Financial (gains from the outcomes of the proposal or award), Personal (association of relative / Family members) and

Institutional (Colleagues, Collaborators, Employer, persons associated in a professional career of an individual such as Ph.D. supervisor etc.)

2. **Specifications as to what constitutes Conflict of Interest.**

Any of the following specifications (non-exhaustive list) imply Conflict of Interest if,

i. Due to any reason by which the Reviewer/Committee Member cannot deliver fair and objective assessment of the proposal.
ii. The applicant is a directly relative# or family member (including but not limited to spouse, child, sibling, parent) or personal friend of the individual involved in the decision making process or alternatively, if any relative of an Officer directly involved in any decision making process / has influenced interest/ stake in the applicant's form etc..
iii. The applicant for the grant/award is an employee or employer of an individual involved in the process as a Reviewer or Committee Member; or if the applicant to the grant/award has had an employer-employee relationship in the past three years with that individual.
iv. The applicant to the grant/award belongs to the same Department as that of the Reviewer/Committee Member.
v. The Reviewer/Committee Member is a Head of an Organization from where the applicant is employed.
vi. The Reviewer /Committee Member is or was, associated in the professional career of the applicant (such as Ph.D. supervisor, Mentor, present Collaborator etc.)
vii. The Reviewer/Committee Member is involved in the preparation of the research proposal submitted by the applicant.
viii. The applicant has joint research publications with the Reviewer/Committee Member in the last three years.
ix. The applicant/Reviewer/Committee Member, in contravention to the accepted norms and ethics followed in scientific research has a direct/indirect financial interest in the outcomes of the proposal.
x. The Reviewer/Committee Member stands to gain personally should the submitted proposal be accepted or rejected.

The Term "Relative" for this purpose would be referred in section 6 of Companies Act , 1956.

3. **Regulation**:

The DST shall strive to avoid conflict of interest in its funding mechanisms to the maximum extent possible. Self-regulatory mode is however recommended for stake holders involved in scientific research and research management, on issues pertaining to Conflict of Interest and scientific ethics. Any disclosure pertaining to the same must be made voluntarily by the applicant/Reviewer/Committee Member.

4. Confidentiality:

The Reviewers and the Members of the Committee shall safeguard the confidentiality of all discussions and decisions taken during the process and shall refrain from discussing the same with any applicant or a third party, unless the Committee recommends otherwise and records for doing so.

5. **Code of Conduct**

To be followed by Reviewers/Committee Members:

a. All reviewers shall submit a conflict of interest statement, declaring the presence or absence of any form of conflict of interest.
b. The reviewers shall refrain from evaluating the proposals if the conflict of interest is established or if it is apparent.
c. All discussions and decisions pertaining to conflict of interest shall be recorded in the minutes of the meeting.
d. The Chairman of the Committee shall decide on all aspects pertaining to conflict of interests.
e. The Chairman of the Committee shall request that all members disclose if they have any conflict of interest in the items of the agenda scheduled for discussion.
f. The Committee Members shall refrain from participating in the decision making process and leave the room with respect to the specific item where the conflict of interest is established or is apparent.
g. If the Chairman himself/herself has conflict of interest, the Committee may choose a Chairman from among the remaining members, and the decision shall be made in consultation with Member Secretary of the Committee.
h. It is expected that a Committee member including the Chair-person will not seek funding from a Committee in which he/she is a member. If any member applies for grant, such proposals will be evaluated separately outside the Committee in which he/she is a member.

To be followed by the Applicant to the Grant/Award:

a. The applicant must refrain from suggesting referees with potential Conflict of Interest that may arise due to the factors mentioned in the specifications described above in Point No. 2.
b. The applicant may mention the names of individuals to whom the submitted proposal should not be sent for refereeing, clearly indicating the reasons for the same.

To be followed by the Officers dealing with Programs in DST:

While it is mandatory for the program officers to maintain confidentiality as detailed in point no. 6 above, they should declare, in advance, if they are dealing with grant applications of a relative or family member (including but not limited to spouse, child, sibling, parent) or thesis/ post-doctoral mentor or stands to benefit financially if the applicant proposal is funded. In such cases, DST will allot the grant applications to the other program officer.

6. **Sanction for violation**

For a) Reviewers / Committee Members and b) Applicant

Any breach of the code of conduct will invite action as decided by the Committee.

For Officers dealing with Program in DST

Any breach of the code of conduct will invite action under present provision of CCS (conduct Rules), 1964.

7. **Final Appellate authority**:

Secretary, DST shall be the appellate authority in issues pertaining to conflict of interest and issues concerning the decision making process. The decision of Secretary, DST in these issues shall be final and binding.

8. **Declaration**

I have read the above "Policy on Conflict of Interest" of the DST applicable to the Reviewer/ Committee Member/ Applicant/ DST Scheme or Program Officer # and agree to abide by provisions thereof.

I hereby declare that I have no conflict of interest of any form pertaining to the proposed grant*

~~I hereby declare that I have conflict of interest of any form pertaining to the proposed grant *~~

* & # (Tick whichever is applicable)

~~Name of the Reviewer/ Committee Member~~ or Applicant or ~~DST Officer~~

(Strike out whichever is not applicable)

13/08/22

(Signature with date)

ANNEXURE – I

ENDORSEMENT FROM HEAD OF THE INSTITUTE

It is certified that the project proposal titled "**STI HUB Pochampally - Optimization and Automation of Age Old Handloom to Improve the Quality of Life of Rural Women Artisans**"

1. Has not been submitted to any other agency/agencies for financial support
2. The scale of pay, allowance, etc. proposed are those admissible to persons of corresponding status employed in the Institute/University/NGO/Voluntary Organization, and are in accordance with the guidelines on emoluments for research personnel as contained in (enclose guidelines if any in case of Central/State Government Institutions)
3. It is agreed that any research outcome or intellectual property right(s) on the invention(s) arising out of the project shall be taken in accordance with the instructions issued with the approval of the Ministry of Finance, Department of Expenditure
4. The institute welcomes participation of **Dr. A. Ramaswami Reddy** as the Principal Investigator and **Dr. S. Udaya Bhaskar,** as the Co-Investigator for the project and that in the unforeseen event of discontinuance by the Principal Investigator, the Co-Investigator will assume responsibility of the fruitful completion of the project (with due intimation to DST).
5. In case the Principal Investigator (PI) leaves the Institution, the Co-Investigator (Co-I) will assume the charge of the Investigator for Competing the Project with prior approval of DST.
6. The proposed equipment is not available with the Host Institution.

Signature of Executive Authority
of Institute/ University with Seal with date

Principal
Malla Reddy Engineering College
Maisammaguda, Dhulapally,
(Post Via Kompally), Sec'bad-500100.

1. Signature of Principal-Investigator with

   Place and date: Hyderabad, 16-08-2022

2. Signature of Co-Investigator

   Place and date: Hyderabad 16/8/2022

Malla Reddy Engg. College (A) 500 100 Hyderabad

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Place and date: Hyderabad, 16-08-2022

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Place and date: HYDERABAD, 16/08/2022

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Place and date: Hyderabad, 16-08-2022

2. Signature of Co-Investigator

Place and date: Hyderabad, 16-8-2022.

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(Post Via Kompally), Sec'bad-500100.

1. Signature of Principal Investigator with

   Place and date: Hyderabad, 16-08-2022

2. Signature of Co-Investigator

   Place and date: Hyderabad & 16-08-22

KKROBOTIC
QUOTATION

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

Signature of Supplier:

Name: KKROBOTIC (PROPRITER: KEWAL KALSARIA)

Address:

E,501,TIMBER GREEN
PARK,NEAR DAHISAR CHECK
POST,DAHISAR
EASR,MUMBAI,400068,INDIA
9819991737
KEWALKALSARIA@GMAIL.COM
KKROBOTIC.INFO

Contact No: +91 9819991737

This quotation is only for:
MALLA REDDY ENGINEERING COLLEGE 6303622066 Maisammaguda(H), Gundlapochampally Village, Medchal-Malkajgiri District Malkajgir, Telangana (TS - 36), PIN Code 500100, India.

TECHNICAL SPECIFICATIONS OF GAMMA 1000 3D PRINTER FOR TECHNICAL

Sr. No.	Feature Type	**GAMMA 1000 PROFESSIONAL 3D PRINTER LATEST MODEL**
	TECNOLOGY	Fused Deposition Modeling (FDM/FFF)

KKROBOTIC
QUOTATION

1.	Build Platform/Max build size	1000mmx1000mmx1000mm.
2.	Filament type	Ability to support a wide range of ABS, PLA, HIPS, Nylon, Flex, PetG , PC, Bronze-filled, Wood-filled and other thermoplastic filaments
3.	Platform Type	Toughen glass Removable Platform for easy print handling

4.	Layer thickness/Height	100 to 400 microns
5.	Printer output accuracy	+/-80 microns
8.	XYZ motions	High precision linear guide rails
9.	Power requirement	110-230V AC. (Yes)
10.	Chassis & body	Powder coated steel, illuminated for viewing printed parts.
11.	Workstation compatibility	Windows Platform.
12.	Enclosure	Completely enclosed structure to avoid warping issues.
13.	User Interface	4 inch Screen Display with encoder control button.
14.	File Input types	Stl, obj
15.	Software STL Packing	Auto Rotate & Packing. (software will be provided for slicing to convert into gcode)
16.	Scaling	cm to mm scaling in one click.

KKROBOTIC
QUOTATION

17	Accessories	Print cleaning accessories kit. Machine Interface Software & Manuals. Machine maintenance accessories kit.
18	Extruders	Independent Dual Extruders that can reach different temperatures
		Removable extruder, 0.4 mm provided can be replace with 0.3,0.4,0.5,0.6,0.8,1mm
19	Connectivity	USB,SD Card, connectivity
20	Speed	Printing speed : 10-300 mm/sec Moving speed : Upto 300 mm/sec
21	Nozzle	Dia 0.4 mm/All metal hot end upto 300 degree Celsius
22	Z- Axis structure	Dual Ball-screw with high precision