

पेटेंट कार्यालय
शासकीय जर्नल

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DATE: 27/12/2019

पेटेंट कार्यालय का एक प्रकाशन
PUBLICATION OF THE PATENT OFFICE

INTRODUCTION

In view of the recent amendment made in the Patents Act, 1970 by the Patents (Amendment) Act, 2005 effective from 01st January 2005, the Official Journal of The Patent Office is required to be published under the Statute. This Journal is being published on weekly basis on every Friday covering the various proceedings on Patents as required according to the provision of Section 145 of the Patents Act 1970. All the enquiries on this Official Journal and other information as required by the public should be addressed to the Controller General of Patents, Designs & Trade Marks. Suggestions and comments are requested from all quarters so that the content can be enriched.

(Om Prakash Gupta)
CONTROLLER GENERAL OF PATENTS, DESIGNS & TRADE MARKS

27TH DECEMBER, 2019

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**THE PATENT OFFICE
KOLKATA, 27/12/2019**

Address of the Patent Offices/Jurisdictions

The following are addresses of all the Patent Offices located at different places having their Territorial Jurisdiction on a Zonal basis as shown below:-

1	<p>Office of the Controller General of Patents, Designs & Trade Marks, Boudhik Sampada Bhavan, Near Antop Hill Post Office,S.M.Road,Antop Hill, Mumbai - 400 037</p> <p style="text-align: center;">Phone: (91)(22) 24123311, Fax : (91)(22) 24123322 E-mail: cgpdtm@nic.in</p>	4	<p>The Patent Office, Government of India, Intellectual Property Rights Building, G.S.T. Road, Guindy, Chennai - 600 032.</p> <p style="text-align: center;">Phone: (91)(44) 2250 2081-84 Fax : (91)(44) 2250 2066 E-mail: chennai-patent@nic.in</p> <p>❖ The States of Andhra Pradesh, Telangana, Karnataka, Kerala, Tamil Nadu and the Union Territories of Puducherry and Lakshadweep.</p>
2	<p>The Patent Office, Government of India, Boudhik Sampada Bhavan, Near Antop Hill Post Office,S.M.Road,Antop Hill, Mumbai - 400 037</p> <p style="text-align: center;">Phone: (91)(22) 24137701 Fax: (91)(22) 24130387 E-mail: mumbai-patent@nic.in</p> <p>❖ The States of Gujarat, Maharashtra, Madhya Pradesh, Goa and Chhattisgarh and the Union Territories of Daman and Diu & Dadra and Nagar Haveli</p>	5	<p>The Patent Office (Head Office), Government of India, Boudhik Sampada Bhavan, CP-2, Sector -V, Salt Lake City, Kolkata- 700 091</p> <p style="text-align: center;">Phone: (91)(33) 2367 1943/44/45/46/87 Fax: (91)(33) 2367 1988 E-Mail: kolkata-patent@nic.in</p> <p>❖ Rest of India</p>
3	<p>The Patent Office, Government of India, Boudhik Sampada Bhavan, Plot No. 32., Sector-14, Dwarka, New Delhi - 110075</p> <p style="text-align: center;">Phone: (91)(11) 25300200 & 28032253 Fax: (91)(11) 28034301 & 28034302 E.mail: delhi-patent@nic.in</p> <p>❖ The States of Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab, Rajasthan, Uttar Pradesh, Uttaranchal, Delhi and the Union Territory of Chandigarh.</p>		

Website: www.ipindia.nic.in

www.patentoffice.nic.in

All applications, notices, statements or other documents or any fees required by the Patents Act, 1970 and The Patents (Amendment) Act, 2005 or by the Patents (Amendment) Rules, 2006 will be received only at the appropriate offices of the Patent Office.

Fees: The Fees may either be paid in cash or may be sent by Bank Draft or Cheques payable to the Controller of Patents drawn on a scheduled Bank at the place where the appropriate office is situated.

पेटेंट कार्यालय

कोलकाता, दिनांक 27/12/2019

• कार्यालयों के क्षेत्राधिकार के पते

विभिन्न जगहों पर स्थित पेटेंट कार्यालय के पते आंचलिक आधार पर दर्शित उनके प्रादेशिक अधिकार क्षेत्र के साथ नीचे दिए गए हैं:-

<p>1 कार्यालय : महानियंत्रक, एकस्व, अभिकल्प तथा व्यापार चिह्न, एंटोप हिल डाकघर के समीप, एस. एम. रोड, एंटोप हिल, मुम्बई- 400 037, भारत, फोन: (91) (22) 24123311 फ़ैक्स: (91) (22) 24123322 ई. मेल: cgpdtm@nic.in</p>	<p>4 पेटेंट कार्यालय, भारत सरकार इंटेलेक्चुअल प्रॉपर्टी राइट्स बिल्डिंग, इंडस्ट्रियल इस्टेट एसआईडीसीओ आरएमडी गोडाउन एरिया एडजसेन्ट टु ईगल फ्लास्क, जी. एस. टी. रोड, गायन्डी चेन्नई - 600 032. फोन: (91)(44) 2250 2081-84 फ़ैक्स: (91)(44) 2250-2066 ई. मेल: chennai-patent@nic.in ❖ आन्ध्र प्रदेश, तेलंगाना, कर्नाटक, केरल, तमिलनाडु तथा पुडुचेरी राज्य क्षेत्र एवं संघ शासित क्षेत्र, लक्षदीप</p>
<p>2 पेटेंट कार्यालय, भारत सरकार बौद्धिक संपदा भवन, एंटोप हिल डाकघर के समीप, एस. एम. रोड, एंटोप हिल, मुम्बई- 400 037, फोन: (91) (22) 24137701 फ़ैक्स: (91) (22) 24130387 ई. मेल: Mumbai-patent@nic.in ❖ गुजरात, महाराष्ट्र, मध्य प्रदेश, गोवा तथा छत्तीसगढ़ राज्य क्षेत्र एवं संघ शासित क्षेत्र, दमन तथा दीव, दादर और नगर हवेली</p>	<p>5 पेटेंट कार्यालय, भारत सरकार कोलकाता, (प्रधान कार्यालय) बौद्धिक संपदा भवन, सीपी-2, सेक्टर- V, साल्ट लेक सिटी, कोलकाता-700 091, भारत. फोन: (91)(33) 2367 1943/44/45/46/87 फ़ैक्स:/Fax: (91)(33) 2367 1988 ई. मेल: kolkata-patent@nic.in ❖ भारत का अवशेष क्षेत्र</p>
<p>3 पेटेंट कार्यालय, भारत सरकार बौद्धिक संपदा भवन, प्लॉट सं. 32, सेक्टर- 14, द्वारका, नई दिल्ली- 110 075. फोन: (91)(11) 25300200, 28032253 फ़ैक्स: (91)(11) 28034301, 28034302 ई. मेल: delhi-patent@nic.in हरियाणा, हिमाचल प्रदेश, जम्मू तथा कश्मीर, पंजाब, राजस्थान, उत्तर प्रदेश, दिल्ली तथा उत्तरांचल राज्य क्षेत्रों, एवं संघ शासित क्षेत्र चंडीगढ़</p>	

वेबसाइट: <http://www.ipindia.nic.in>

www.patentoffice.nic.in

पेटेंट अधिनियम, 1970 तथा पेटेंट (संशोधन) अधिनियम, 2005 अथवा पेटेंट (संशोधन) नियम, 2006 द्वारा वांछित सभी आवेदन, सूचनाएँ, विवरण या अन्य दस्तावेज़ या कोई शुल्क पेटेंट कार्यालय के केवल उपयुक्त कार्यालय में स्वीकृत होंगे।

शुल्क: शुल्क या तो नगद रूप में या Controller of Patents के नाम में देय बैंक ड्राफ्ट या चेक के द्वारा भेजी जा सकती है जो उसी स्थान के किसी अनुसूचित बैंक में प्रदत्त हो जहाँ उपयुक्त कार्यालय स्थित है।

SPECIAL NOTICE

18 Months publication as required under Section 11A of the Patents Act, 1970 as amended by the Patents (Amendment) Act, 2005.

Notice is hereby given that any person at any time before the grant of Patent may give representation by way of opposition to the Controller of Patents at appropriate office on the ground and in a manner specified under section 25(1) of the Patents (Amendment) Act, 2005 read with Rule 55 of the Patents (Amendment) Rules, 2006.

Notice is also given that if any interested person requests for copies of the complete specification, drawing and abstract of any application already published, the photocopy of the same can be supplied by the Patent Office as per the jurisdiction on payment of prescribed fees of Rs.8/- per page. If any further details are required to be obtained, the same can be provided by the respective Patent Offices on request.

(Om Prakash Gupta)
CONTROLLER GENERAL OF PATENTS, DESIGNS & TRADE MARKS

SPECIAL NOTICE

Under the new provision of the Patents Act, 1970 as amended by the Patents (Amendment) Act, 2005 and Rules there under, Publication of the matter relating to Patents in the Official Gazette of India Part III, Section 2 has been discontinued and instead The Official Journal of the Patent Office is being published containing all the activities of The Patent Office such as publication of all the patent applications after 18th months , grant of patents & all other information in respect of the proceedings as required under the provisions of the Patents (Amendment) Act, 2005 and Rules thereunder on weekly basis on every **Friday**.

The Journal is uploaded in the website every Friday. So Paper form and CD-ROM form of the Journal are discontinued from 01/01/2009.

SPECIAL NOTICE

Every effort is being taken to publish all the patent applications under section 11(A) of the Patents Act. However, if duplication of publication of any application is found, then earlier date of publication will be taken for the purpose of provisional protection for applicant and Patent Office will grant Patent not before six months from the date of second publication, provided that there is there is no third party representation.

LIST OF RESTRICTED HOLIDAYS FOR THE YEAR - 2020

In addition to the declared Holidays each members of the staffs of this office may also be permitted to avail of any two holidays to be chosen by him/her out of the Restricted Holidays given below, after giving prior intimation.

	Restricted Holidays & Connected Festivals	Month & Date	Days of Week
1.	New Years Day	January 01	Wednesday
2.	Guru Govind Singh's Birthday	January 02	Thursday
3.	Lohri	January 13	Monday
4.	Makar Sankranti/Pongal	January 15	Wednesday
5.	Pongal	January 15	Tuesday
6.	Netaji Subhash Chandra Bose's birthday	January 23	Thursday
7.	Guru Ravidas's Birthday	February 09	Sunday
8.	Swami Dayananda Saraswati's Birth Day	February 18	Tuesday
9.	Shivaji Jayanti	February 19	Wednesday
10.	Maha Shivaratri	February 21	Friday
11.	Holika Dahan/Dolyatra	March 09	Monday
12.	Hazrat Ali,s Birthday	March 09	Monday
13.	ChaitraSukladi/Gudi Padava/Ugadi/Cheti Chand	March 25	Wednesday
14.	Easter Sunday	April 12	Sunday
15.	Vaisakhi/Vishu	April 13	Monday
16.	Mesadi/Vaisakhadi (Bengal)/Bahag Bihu (Assam)	April, 14	Tuesday
17.	Guru Rabindranath's birthday	May 08	Friday
18.	Jamat-ul-vida	May 22	Friday
19.	Rath Yatra	June 23	Tuesday
20.	Raksha Bandhan	August 03	Monday
21.	Janmashtami	August 11	Tuesday
22.	Parsi New Year's day/Nauraj	August 16	Sunday
23.	Vinayaka Chaturthi/Ganesh Chaturthi	August 22	Sunday
24.	Onam or Thiru Onam day	August 31	Monday
25.	Dussehra(Maha Ashtami) (Maha Nabami) (Additional)	October 24	Saturday
26.	Vijay Dashmi (Bengal, Kerala)	October 26	Monday
27.	Maharshi Valmikis Birthday	October 31	Saturday
28.	Karaka Chaturthi (Karva Chouth)	November 04	Wednesday
29.	Naraka Chaturdasi	November 14	Saturday
30.	Govardhan Puja	November 15	Sunday
31.	Bhai Duj	November 16	Monday
32.	Pratihari Shashthi or Surya Shasthi (Chhat Puja)	November 20	Friday
33.	Guru Tegh Bahadur's Martyrdom Day	November 24	Tuesday
34.	Christmas Eve	December 24	Thursday

(12) PATENT APPLICATION PUBLICATION

(21) Application
No.201941053275 A

(19) INDIA

(22) Date of filing of Application :21/12/2019

(43) Publication Date : 27/12/2019

(54) Title of the invention : AN AUTOMATED IOT BASED AGRICULTURE MONITORING SYSTEM SUPPORTED BY WIND ENERGY AND MEASURE VARIOUS PARAMETERS

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Date

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(57) Abstract :

An Automated Agricultural Land Monitoring System with Plurality of Sensors and Detect Various Parameters associated thereto is an invention that will lead for better cultivation practices and Yields. Also the entire system is run using Renewable energy resource which is a need of the hour invention. Wind energy is used to run and maintain the agricultural monitoring system. Agriculture depends on various parameters and factors that are artificially created because of current agricultural methods or practices. Soil parameters are most important factors since no agriculture can be carried out without soil and they has to be maintained and replenished also. Reducing the amount of water used that is irrigation is next important factor that has to be monitored since Agriculture mostly depends on monsoon rains that are drastically reduced in the recent times. The invention will collect all the related parameters and the same data will be stored in the centralized server on hourly basis so that it helps the farmer to get along with a analysis report and plan their cropping accordingly. Thus the invention is advantageous since it reduces cost, water, amount of pesticides required, quantity of fertilizers required in turn helping the farmer to practice a smart agricultural method and the entire system runs using the energy supplied by the wind mill.

No. of Pages : 21 No. of Claims : 9

FORM 1
THE PATENTS ACT, 1970
(39 of 1970)
&
THE PATENTS RULES, 2003
APPLICATION FOR GRANT OF PATENT
[See sections 7,54 & 135 and rule 20(1)]

(FOR OFFICE USE ONLY)

Application No.:
Filing Date:
Amount of Fee Paid:
CBR No.:
Signature:

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3. TITLE OF THE INVENTION: AN AUTOMATED IOT BASED AGRICULTURE MONITORING SYSTEM SUPPORTED BY WIND ENERGY AND MEASURE VARIOUS PARAMETERS

4. ADDRESS FOR CORRESPONDENCE OF APPLICANT / Telephone No.:

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Mobile No:

E-mail: sgowthami12@gmail.com

5. PRIORITY PARTICULARS OF THE APPLICATION(S) FILED IN CONVENTION COUNTRY:

Sr.No.	Country	Application Number	Filing Date	Name of the Applicant	Title of the Invention
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6. PARTICULARS FOR FILING PATENT COOPERATION TREATY (PCT) NATIONAL PHASE APPLICATION:

International Application Number	International Filing Date as Allotted by the Receiving Office
PCT//	

7. PARTICULARS FOR FILING DIVISIONAL APPLICATION

Original (first) Application Number	Date of Filing of Original (first) Application
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8. PARTICULARS FOR FILING PATENT OF ADDITION:

Main Application / Patent Number:	Date of Filing of Main Application
-----------------------------------	------------------------------------

9. DECLARATIONS:**(i) Declaration by the inventor(s)**

I/We ,Dr.A.RAMASWAMY REDDY,Dr.G.CHARLES BABU,Dr.R. P. RAM KUMAR,Dr. KANNAN SHANMUGAM,Mr.P V RAMANA MURTHY,Mr.MORE SWAMI DAS,Mr.SANJEEVA POLEPAKA,Mr.P.ANDREWS HIMAKIRAN,Mr.S.AJAY KUMAR,Mr.K.V.RAGHAVENDER, is/are the true & first inventor(s) for this invention and declare that the applicant(s) herein is/are my/our assignee or legal representative.

(a) Date: -----

(b) Signature(s) of the inventor(s):

(c) Name(s): Dr.A.RAMASWAMY REDDY,Dr.G.CHARLES BABU,Dr.R. P. RAM KUMAR,Dr. KANNAN SHANMUGAM,Mr.P V RAMANA MURTHY,Mr.MORE SWAMI DAS,Mr.SANJEEVA POLEPAKA,Mr.P.ANDREWS HIMAKIRAN,Mr.S.AJAY KUMAR,Mr.K.V.RAGHAVENDER

(ii) Declaration by the applicant(s) in the convention country

I/We, the applicant(s) in the convention country declare that the applicant(s) herein is/are my/our assignee or legal representative.

(a) Date: -----

(b) Signature(s) :

(c) Name(s) of the singnatory: Dr.A.RAMASWAMY REDDY,Dr.G.CHARLES BABU,Dr.R. P. RAM KUMAR,Dr. KANNAN SHANMUGAM,Mr.P V RAMANA MURTHY,Mr.MORE SWAMI DAS,Mr.SANJEEVA POLEPAKA,Mr.P.ANDREWS HIMAKIRAN,Mr.S.AJAY KUMAR,Mr.K.V.RAGHAVENDER

(iii) Declaration by the applicant(s)

- The Complete specification relationg to the invention is filed with this application.
- I am/We are, in the possession of the above mentioned invention.
- There is no lawful ground of objection to the grant of the Patent to me/us.

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<p>I/We hereby declare that to the best of my/our knowledge, information and belief the fact and matters stated hereing are correct and I/We request that a patent may be granted to me/us for the said invention.</p>		
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FORM 2
THE PATENTS ACT, 1970
(39 OF 1970)
AND
THE PATENT RULES, 2003
COMPLETE SPECIFICATION
(See section 10 and rule 13)

Title of Invention:

**“AN AUTOMATED IOT BASED AGRICULTURE MONITORING SYSTEM
SUPPORTED BY WIND ENERGY AND MEASURE VARIOUS
PARAMETERS”**

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FIELD OF INVENTION

[0001] The present invention relates to the field of Automated IOT Based Agricultural Land Monitoring System with plurality of Sensors to detect various parameters associated with Soil, Irrigation, Pesticide Control and Cropping Patterns. It is important to utilize the renewable energy resources to the maximum since non-renewable resources will become extinct in the near future. The various sensors are implemented to detect the parameters related and thus the collected values or data are sent to the user's electronic gadget. Also the data will be stored in the centralized server on daily, weekly and Monthly basis that helps for generation of analysis report.

BACKGROUND OF INVENTION

[0002] A good agricultural practice will depend on various factors that are either man made or the factors that result from nature. Indian agriculture mostly depends on water for Irrigation, soil fertility, Pesticides Control and Crop Rotation practices for better yield and cultivation.

[0003] It is important to depend on the renewable energy resources to run such monitoring systems. In this invention the entire monitoring system is run and managed by wind energy. Usually the intensity or speed of wind will be very high in the agricultural fields. Thus it is easy to utilize the same energy to run the agricultural monitoring system.

[0004] Indian soils have been used for growing crops for years without caring much for replenishing. This has led to depletion and exhaustion of soils resulting in their low productivity. This is a serious problem which can be solved by using appropriate quantity of Manures and fertilizers. Manures and fertilizers play the important role in yielding good quantity of crops. It

has been estimated that about 70 per cent of growth in agricultural production can be attributed to increased fertilizer application.

[0005] However, there are practical difficulties in providing sufficient manures and fertilizers in all parts of a country because of the dimensions inhabited by poor farmers. Thus there is a need to implement a system that will monitor these parameters from soil fertility, irrigation and pesticides control that will lead to a well defined agricultural system and save from water to manure or fertilizers. Also will reduce the cost to a greater extent since quantity and quality of soil, water and pesticides are continuously monitored.

[0006] Pests reduce crop productivity to a greater extent, classified by their impacts; stand reducers such as damping-off pathogens, photosynthetic rate reducers such as fungi, bacteria, viruses, leaf senescence accelerators , light stealers pathogens such as weeds, assimilate sappers such as nematodes and sucking arthropods, and tissue consumers such as chewing animals, necrotrophic pathogens. Identifying them at earlier stages will help to save the yield from cultivated land in a betterment way.

[0007] A number of different types of system and methods are available for agricultural monitoring in the prior art. For example, the following patents are provided for their supportive teachings and are all incorporated by reference.

[0008] In this disclosure, US08862277 it discloses in detail that the invention is not limited in its application to the details of the construction and arrangement of parts illustrated in the accompanying drawings. The invention is capable of other embodiments, as depicted in different figures as described above and of being practiced or carried out in a variety of ways. It is to be understood that the phraseology and terminology employed herein is for the

purpose of description and not of limitation. “Automatic efficient irrigation threshold setting” A method and system for monitoring the dynamic response of soil moisture and setting a threshold in relation to the field capacity of a soil area is disclosed herein. By measuring the dynamic response of soil moisture under wet soil conditions, one can determine a practical field capacity for the soil, in-situ, based solely on the soil moisture sensor output. Essentially, by looking at how the soil moisture level varies with time one can determine the field capacity.

[0009] In yet another disclosure, WO2017029592 discloses invention that relates to a novel device and method for measurement of soil health parameters and fertilizer recommendation: The present disclosure relates to a method and device for assessment of soil health. In an aspect, the disclosed device can determine quantities of organic carbon, available nitrogen (N), phosphorus (P), potassium (K), sulphur (S), iron (Fe), zinc (Zn), boron (B), manganese (Mn), and copper (Cu) in a sample of soil. In another aspect, the device can additionally provide status of soil p H (based on which gypsum requirement and lime requirement are determined) and soil electric conductivity (EC) of the soil sample. In another aspect, calcareousness of a soil sample is measured based on the measurement of volume of gas of the sample in relation to volume of gas of a standard when specific strength and measured quantities of specified chemicals are added in both, and the results are fed in the main unit containing microcontroller.

[0010] In yet another disclosure, 20194102935 discloses invention that relates to a novel the embodiment of the invention discloses an intelligent irrigation system based on the wireless Internet of Things. The intelligent irrigation system comprises an irrigation system body, a central control unit, a zone controller, an irrigation control module, a sensing control module and a mobile client terminal, wherein the central control unit, the zone controller

and the sensing control module are located inside the irrigation system body, the zone controller controls the sensing control module through a ZigBee wireless communication module, the central control unit controls the zone controller through a ZigBee wireless communication module, the zone controller controls the sensing control module through the ZigBee wireless communication module, sensor data measured by the sensing control module are transmitted to the zone controller through the ZigBee wireless communication module, and the zone controller transmits the sensor data to the central control unit through the ZigBee wireless communication module. Timing irrigation can be set at the near end of the intelligent irrigation system through buttons, irrigation operation can be carried out at the far end through mobile phone operation at any time and any place, and one-touch operation is supported.

[0011] In yet another disclosure, 201941022588 discloses invention that relates to a novel advanced smart aquaponics technology for future farming in agriculture: The idea of an aquaponics is pitched across the table during a routine innovation topic discussion which is brainstormed and advanced research for future technology in agriculture. The team formed for the purpose dived into the research phase which resulted in designing a novel idea of using household green waste along with some mechanical arrangements embedded with electronics units applied to aquaponics technology. The idea of the proposal throws a light on the structuration and evaluation of the idea into a holistic product.

[0012] In yet another disclosure, 201941008406 discloses invention that relates to a novel design and implementation of smart agriculture using IOT. India is a country which is having more population and it is very important to feed the food sufficiently to all the people. The main thing which is needed to fulfill this requirement is well equipped "agriculture" with

enough water and minerals in the soil maintaining this is bit problematic. So integrating the agriculture field with Technology will make sound. Automatic soil features and condition fetching and decision taking can be done by using sensors and actuators, growing the seed and getting the yield is not the only thing, we can also provide security to farm land as well as to the product(obtained yield).

[0013] In yet another disclosure, 2670/DEL/2014 discloses invention that relates to a novel smart agriculture: wsn with gsm for automation and control of vegetation, irrigation and flood in precision agriculture: Most of the countries development depends on the agriculture and agriculture is the backbone of any country. The main contribution of our work is to provide newest and better technologies such as information and communication technology (ICT) to the farmers for the precision agriculture. Here objective of the paper is wireless sensor network (WSN) along with global system for mobile communications (GSM) through the internet web applications for automation and control of vegetation, irrigation and flood in the precision agriculture, which is called as smart agriculture. Data acquisition of the soil has been done on real time mode of precious agricultural parameters of green house, poly house, and agricultural land using sensor nodes with eight different sensors. These are soil-moisture, soil-temperature, soil-pH, environmental-temperature, environmental-humidity, sunlight, and land-flood, air flow rate sensor. The collected real time soil data will be transmitted through WSN with GSM modem to a server placed in the control room. The real time soil data of agricultural farm will be used by the decision support system (DSS) to monitor the growth of the vegetation, irrigation and flood through SMS and email notifications to registered farmers through the internet. At the same time DSS can be also used to control the irrigation and flood of the green house, poly house and land through SMS. Our overall

objective of this work is to provide vegetation, irrigation and flood monitoring and control in the hands of farmer.

[0014] In yet another disclosure, ZA1996/07565 discloses invention that relates to a novel control system for the irrigation of watering stations: An irrigation system for controlling a plurality of watering stations whereby each station is irrigated in accordance with the specific soil needs at that station; the system includes a plurality of irrigation controllers, one at each watering station, each controller including a power line transceiver, a micro-processor, an erasable non-volatile memory, and an actuating circuitry for activating a valve actuator in response to data received from a computer; a power line network powers the controllers and serves as a medium through which the controllers communicate between one another and the computer.

[0015] In yet another disclosure, 201911045633 discloses invention that relates to novel “a system and method of planting and breeding based on internet of things with loud service and service flow method in agriculture” The invention relates to an agricultural planting and breeding- based Internet of things cloud service system, which comprises a cloud terminal node core network element, a ubiquitous information transmission network core network element and a cloud service centre core network element. The agricultural planting and breeding- based Internet of things cloud service system has the advantages of combining internet of things and cloud computation with agricultural planting and the breeding industry, realizing butt joint between the internet of things technology and the cloud computation technology in the agricultural planting and breeding information service, better solving a plurality of problems existing in current protected agriculture and public agricultural product information service, realizing access of scale farming perception terminals and fusion of mass data traffic, effectively reducing the using threshold of agricultural information server.

[0016] In yet another disclosure, 2156/MUM/2010 discloses invention that relates to novel “paper production from agriculture waste using manually operated equipments” Most of the forests and barren land is producing waste of grass. A manual method for utilizing this waste for production of paper and cardboard is proposed. The raw material is cut and fermented and pressed by using manually operated equipments. Following invention is described in detail with the help of FIG. 1 which is a schematic view illustrating screw press used for pressing paper pulp in a mould; Where 1 denotes- Handle Wheel, 2 denotes- Screw, 3 denotes- Pressing platform, 4 denotes-Paper pulp, 5 denotes- Bamboo mould FIG. 2 which is illustrating the frame of bamboo used for drying; FIG. 3 is a schematic view illustrating how polythene sheet is used for making shelf; FIG. 4 is a self made of bamboo pieces; FIG. 5 is a solar drier completed and in use

[0017] In yet another disclosure, 201941030253 discloses invention that relates to novel “intelligent monitoring system to increase the productivity in agriculture” Intelligent monitoring system to increase the agriculture product based on quality & quantity. Intelligent monitoring system in agriculture is comprises following elements: agriculture environment sensors(like soil moisture ,climate monitoring, crop growth & water level management) and automatic irrigation system and the sensors are deployed diagonally with uniform distance at various location in the farm and data acquisition includes environmental N fait data stored in cloud storage, with the help of Wireless communication through IOT gateway and the farmer can monitoring their farm with the help of smart handheld devices. This intelligent monitoring system is to minimize the man power in large area of the farm. This system will help to increase the yield of crops, improve business efficiency & ensure the sustainability.

[0018] In yet another disclosure, 201921015727 discloses invention that relates to novel “intelligent agriculture system” The present invention detailed with the help of figures, block diagram relates to an intelligent agriculture system comprising of pH, moisture, temperature, humidity, water flow, and ultrasonic sensors. Herein both open air and underground sensors collect data and send it continuously to the Controller. The controller checks those values; pulls data about rainfall occurrence from existing systems; initiates the water management module by taking the decision to turn on/off the water supply either by sprinkler/pipes. The system stores all data on the cloud; post cultivation, crop productivity is calculated and analyzed; machine learning algorithms are applied to predict the crop productivity in the future under similar climatic scenarios. A periodic reminder is sent to the farmer for the use of fertilizers; the drone is used for spraying pesticides; the soil is sent for testing its nutrients. Depending on the availability of water, soil conditions, climatic predictions, the system suggests the next crop to be grown

[0019] In yet another disclosure, US20180262571 discloses invention that relates to novel “Integrated IoT (Internet of Things) System Solution for Smart Agriculture Management” Currently there is no viable end to end integrated technology solution platform available to increase overall crop yield nor well established communication platform nor infrastructure for agriculture management, logistics, storage, distribution and delivery. The utility model relates to the technical field of wireless sensing, specifically an agricultural IoT (Internet of Things) monitoring device based on optical fiber sensing, wherein the device can monitor the temperature, humidity, vibration and other parameters of an agricultural cultivation base. The device is characterized in that the device is provided with a microcontroller, a parameter recorder and the parameter recorder is connected with the sensors.

For example: soil temperature sensor and humidity sensors, a soil moisture sensor, a soil conductivity sensor, an air temperature and humidity transducer, a soil salinity sensor, etc.

[0020] In yet another disclosure, US20180177136 discloses invention that relates to novel “method for prediction of soil and/or plant condition” A method and system for predicting soil and/or plant condition in precision agriculture with a classification of measurement data for providing an assignment of a measurement parcel to classes of interest. The assignment is used for providing action recommendations, particularly in real time or close to real time, to a farmer and/or to an agricultural device based on acquired measurement data, particularly remote sensing data, and wherein a classification model is trained by a machine learning algorithm, e.g. relying on deep learning for supervised and/or unsupervised learning, and is potentially continuously refined and adapted thanks to a feedback procedure.

[0021] The above information is presented as background information only to assist with an understanding of the present disclosure. No determination has been made, no assertion is made, and as to whether any of the above might be applicable as prior art with regard to the present invention.

[0022] There remains a constant need in society for a continuous flow of new and innovative novelty Agricultural monitoring system setup. It is in this context, that the subject invention is useful, not only to provide cheaper solution and but that is easy to operate and use.

[0023] In the view of the foregoing disadvantages inherent in the known types of Agricultural Monitoring system now present in the prior art, the present invention provides an improved system. As such, the general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new and improved diabetic detection device which has all the

advantages of the prior art and none of the disadvantages.

SUMMARY OF THE INVENTION

[0024] In the view of the foregoing disadvantages inherent in the known types of agriculture monitoring systems now present in the prior art, the present invention provides an improved automated monitoring system. As such, the general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new and improved monitoring system which has all the advantages of the prior art and none of the disadvantages.

[0025] The objective of the invention is to implement an automated agricultural land monitoring system with plurality of sensors to detect various parameters related to soil fertility, soil humidity, temperature of soil, manure or fertilizer need of the soil, amount of water required for the soil thus reducing the wastage of water, detecting the predators that is external creatures that are moving around in the particular area of cultivating land.

[0026] Another object of the invention is that the soil humidity and temperature are communicated to the sensor that is placed in the pump or irrigation setup. The sensor in the irrigation setup will transmit the required amount of water based on the values sent from soil sensor thus reducing the water wastage by just supplying the required quantity of water.

[0027] Yet another object of the invention is that the parameters from the soil as well as irrigation sensor will also be communicated to the user so that he can get to know the amount of water supplied and the current status of his/her soil.

[0028] Yet another object of invention is that the soil sensor will also indicate regarding its current fertility status which is very important factor in its replenishment step. The same data will also be communicated to the user which helps him/her understand the soil condition and plan his/her cropping

accordingly.

[0029] Another object of the invention is that there is a Motion sensor called as predator sensor to identify the creatures that move about in the particular region of cultivated land. This plays an important role because the betterment of yield directly relates to these kinds of hindrances. The predators in the sense the various creatures such as ants, rats, snakes or any other will start destroying the crops in one or the other way. Once the sensor identifies any such creatures the land owner or user will be given an alert message immediately.

[0030] Yet another object of the invention is that there is also a sensor to detect the growth of crops or plants and its well being. If any particular plant or region in the field is attacked by a disease the information regarding the same will be communicated to the land owner or user.

[0031] Yet another object of the invention is that all the data collected from various sensors that are installed will be stored in the centralized server. The database in the server will help to generate analysis reports based on hourly, monthly, weekly or yearly basis.

[0032] Yet another object of the invention is that the entire agricultural monitoring system is run using wind energy. The energy derived from the wind mill which is connected to the monitoring system is used to run the entire system.

[0033] In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

[0034] These together with other objects of the invention, along with the various features of novelty which characterize the invention, are pointed out with particularity in the disclosure. For a better understanding of the invention, its operating advantages and the specific objects attained by its uses, reference should be had to the accompanying drawings and descriptive matter in which there are illustrated preferred embodiments of the invention.

BRIEF DESCRIPTION OF DRAWINGS

[0035] The invention will be better understood and objects other than those set forth above will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein: schematic view

[0036] Fig. 1 illustrates the schematic view of the automated agricultural monitoring system, according to an embodiment herein.

[0037] Fig. 2 illustrates the block diagram of the automated agricultural monitoring system, according to an embodiment herein.

DETAILED DESCRIPTION OF THE INVENTION

[0038] In the following detailed description, reference is made to the accompanying drawings which form a part hereof, and in which is shown by way of illustration specific embodiments in which the invention may be practiced. These embodiments are described in sufficient detail to enable those skilled in the art to practice the invention, and it is to be understood that the embodiments may be combined, or that other embodiments may be utilized

and that structural and logical changes may be made without departing from the spirit and scope of the present invention. The following detailed description is, therefore, not to be taken in a limiting sense, and the scope of the present invention is defined by the appended claims and their equivalents.

[0039] While the present invention is described herein by way of example using several embodiments and illustrative drawings, those skilled in the art will recognize that the invention is neither intended to be limited to the embodiments of drawing or drawings described, nor intended to represent the scale of the various components. Further, some components that may form a part of the invention may not be illustrated in certain figures, for ease of illustration, and such omissions do not limit the embodiments outlined in any way. It should be understood that the drawings and detailed description thereto are not intended to limit the invention to the particular form disclosed, but on the contrary, the invention covers all modification/s, equivalents and alternatives falling within the spirit and scope of the present invention as defined by the appended claims. The headings are used for organizational purposes only and are not meant to limit the scope of the description or the claims. As used throughout this description, the word "may" is used in a permissive sense (i.e. meaning having the potential to), rather than the mandatory sense (i.e. meaning must). Further, the words "a" or "an" mean "at least one" and the word "plurality" means one or more, unless otherwise mentioned. Furthermore, the terminology and phraseology used herein is solely used for descriptive purposes and should not be construed as limiting in scope. Language such as "including," "comprising," "having," "containing," or "involving," and variations thereof, is intended to be broad and encompass the subject matter listed thereafter, equivalents, and any additional subject matter not recited, and is not intended to exclude any other additives, components, integers or steps. Likewise, the term "comprising" is

considered synonymous with the terms "including" or "containing" for applicable legal purposes. Any discussion of documents, acts, materials, devices, articles and the like is included in the specification solely for the purpose of providing a context for the present invention.

[0040] In this disclosure, whenever an element or a group of elements is preceded with the transitional phrase "comprising", it is understood that we also contemplate the same element or group of elements with transitional phrases "consisting essentially of", "consisting", "selected from the group consisting of", "including", or "is" preceding the recitation of the element or group of elements and vice versa.

[0041] The automated agricultural land monitoring system with various sensors will help detect the important parameters that can help us provide better yield. Indian agriculture is mostly depending on monsoon rains. Water is a crucial factor for cultivation. Most of the farmers are committing suicide either because of drought or debt. Debt arises when there is no rain and water shortage arises the farmers will be pushed to take loans for installation of bore wells in their respective lands. The bore wells may also dry out soon and the loan they have borrowed will be the debt for them. Also depending on renewable energy source for running the system will help farmer reduce his electricity bill and expenses thereof.

[0042] Also replenishment of soil is another important factor. The quality and quantity of yield will definitely depend on the fertility of soil. In the current scenario, the soil has lost its fertility since the same soil has been used for years for the purpose of cultivation. When the thinking about replenishment arises again the farmer is pushed to debt to buy manures and fertilizers. Though it is essential, the quantity of manure or fertilizer can be reduced to some extent if soil condition is continuously monitored and data regarding the same is communicated to the user.

[0043] In the present invention, farmer can manage his cropping pattern even though there are changes in seasonal rains or monsoon rains since huge quantity of water is saved from smart irrigation control sensor. Also the soil sensor will help to reduce the manure and fertilizer requirement to a greater extent which helps farmer or user to cut down the expenses and save some amount without being pushed into debt.

[0044] Reference will now be made in detail to the exemplary embodiment of the present disclosure. Before describing the detailed embodiments that are in accordance with the present disclosure, it should be observed that the embodiment resides primarily in combinations arrangement of the system according to an embodiment herein and as exemplified in FIG. 1.

[0045] In the following description, for the purpose of explanation, numerous specific details are set forth in order to provide a thorough understanding of the arrangement of the system according to an embodiment herein. It will be apparent, however, to one skilled in the art, that the present embodiment can be practiced without these specific details. In other instances, structures are shown in block diagram form only in order to avoid obscuring the present invention.

[0046] Fig 1 describes the schematic view of the agricultural monitoring system 100. The system 100 has soil sensor 101 that communicates various parameters such as temperature, humidity, moisture content in the soil and the same data will be transferred to the irrigation control sensor 105. The irrigation sensor 105 will consider the data from soil sensor 101 and supply water to the crops accordingly thus reducing the water wastage. The soil sensor 101 will also communicate the data to the user 106 and the centralized server 104. The predator sensor 102 will help identify the creatures that are moving about in the cultivating area. The information from predator sensor 102 will be communicated to the user and the user can use this data and take

measures to control those predators and save crops from them. There is also a cropping pattern sensor 103 to detect the characteristics and diseases that may have attacked them creating a hindrance to their growth. The data from sensor 104 will also be communicated to the user 106 as well as centralized server 104. The centralized server 104 will receive and save data from various sensors 101,102,105 and 104 and will be helpful for the user 106 to use the data for report generation and plan his next cultivation accordingly by correcting and taking precautionary measures. The energy to run the entire monitoring system is supplied by wind mill 107. Thus the invention is using the renewable energy resource which is the need of the hour requirement.

[0047] Fig 2 describes the block diagram of the system 100 and explains the various communication links between them. The soil sensor 101 communicates with user 106, centralized server 104 and irrigation sensor 105. The soil sensor 101 has two way communications with irrigation sensor 105 and user 106. The irrigation sensor has a communication link only with soil sensor 101, server 104 and user 106. The Predator sensor 102 will communicate with the user 106 as well as centralized server 104. The cropping sensor communicates only with the user 106 and server 104. The centralized server 104 will receive data from all the sensors so that it can maintain a database. The database of centralized server 104 can be used for generating reports on daily, weekly and monthly basis. This information serves as a raw data for the user to start his/her second cropping with an experience of not repeating his previous season mistakes. Thus farmer can follow smart agricultural practices. The energy to run the entire set of sensors and system is provided by wind mill 107. The figure illustrates the communication link of wind mill 107 with plurality of sensors and the way wind mill 107 supplies energy to various sensors for their smooth functioning.

I/WE CLAIM

1. An automated IOT based agricultural land monitoring system with plurality of sensors to detect various parameters related to soil, irrigation, predators control and much consists of a Sensor to detect quality of soil; a Sensor for irrigation control; a Sensor for predator identification; a wind mill; a sensor for identifying the crops well being and a centralized server to store data.
2. As claimed in claim 1, the system has a soil sensor to detect the various parameters of soil such as its temperature, humidity, moisture, fertility rate and the same data will be communicated to the irrigation sensor.
3. As claimed in claim 2, the irrigation control sensor will function depending on the data it receives from the soil sensor. The irrigation sensor will supply only the required quality of water depending on the soil conditions such as the wetness. Thus the water wastage has been significantly reduced.
4. As claimed in claim 1, the predator control sensor will identify the movements of any creatures and sends the alert to the land owner or user and helps to save crops from them.
5. As claimed in claim 1, there is also a cropping pattern sensor that helps to identify the well being characteristics of the crop. It will collect data regarding the particular plants condition such as the disease, its yield capacity, whether its growth is well and such.
6. As claimed in claim 5, the data from cropping sensor will also be

communicated to the user immediately so that he can take action accordingly and improve the yield.

7. As claimed in claim 1, there is a centralized server wherein it receives data from every sensor that has been used and the data will be stored for future references.
8. As claimed in claim 7, the data in the centralized server will be saved on hourly, daily, monthly and yearly basis that helps the user to generate analysis reports based on which the mistakes can be identified and improve the yield by correcting those mistakes.
9. As claimed in claim 1, the entire agricultural monitoring system and the sensors are run using the energy supplied by the wind mill which is the renewable source of energy.

ABSTRACT

AN AUTOMATED IOT BASED AGRICULTURE MONITORING SYSTEM SUPPORTED BY WIND ENERGY AND MEASURE VARIOUS PARAMETERS

An Automated Agricultural Land Monitoring System with Plurality of Sensors and Detect Various Parameters associated thereto is an invention that will lead for better cultivation practices and Yields. Also the entire system is run using Renewable energy resource which is a need of the hour invention. Wind energy is used to run and maintain the agricultural monitoring system. Agriculture depends on various parameters and factors that are artificially created because of current agricultural methods or practices. Soil parameters are most important factors since no agriculture can be carried out without soil and they has to be maintained and replenished also. Reducing the amount of water used that is irrigation is next important factor that has to be monitored since Agriculture mostly depends on monsoon rains that are drastically reduced in the recent times. The invention will collect all the related parameters and the same data will be stored in the centralized server on hourly basis so that it helps the farmer to get along with a analysis report and plan their cropping accordingly. Thus the invention is advantageous since it reduces cost, water, amount of pesticides required, quantity of fertilizers required in turn helping the farmer to practice a smart agricultural method and the entire system runs using the energy supplied by the wind mill.

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100

Total Sheet 2

Sheet 1 Of 2

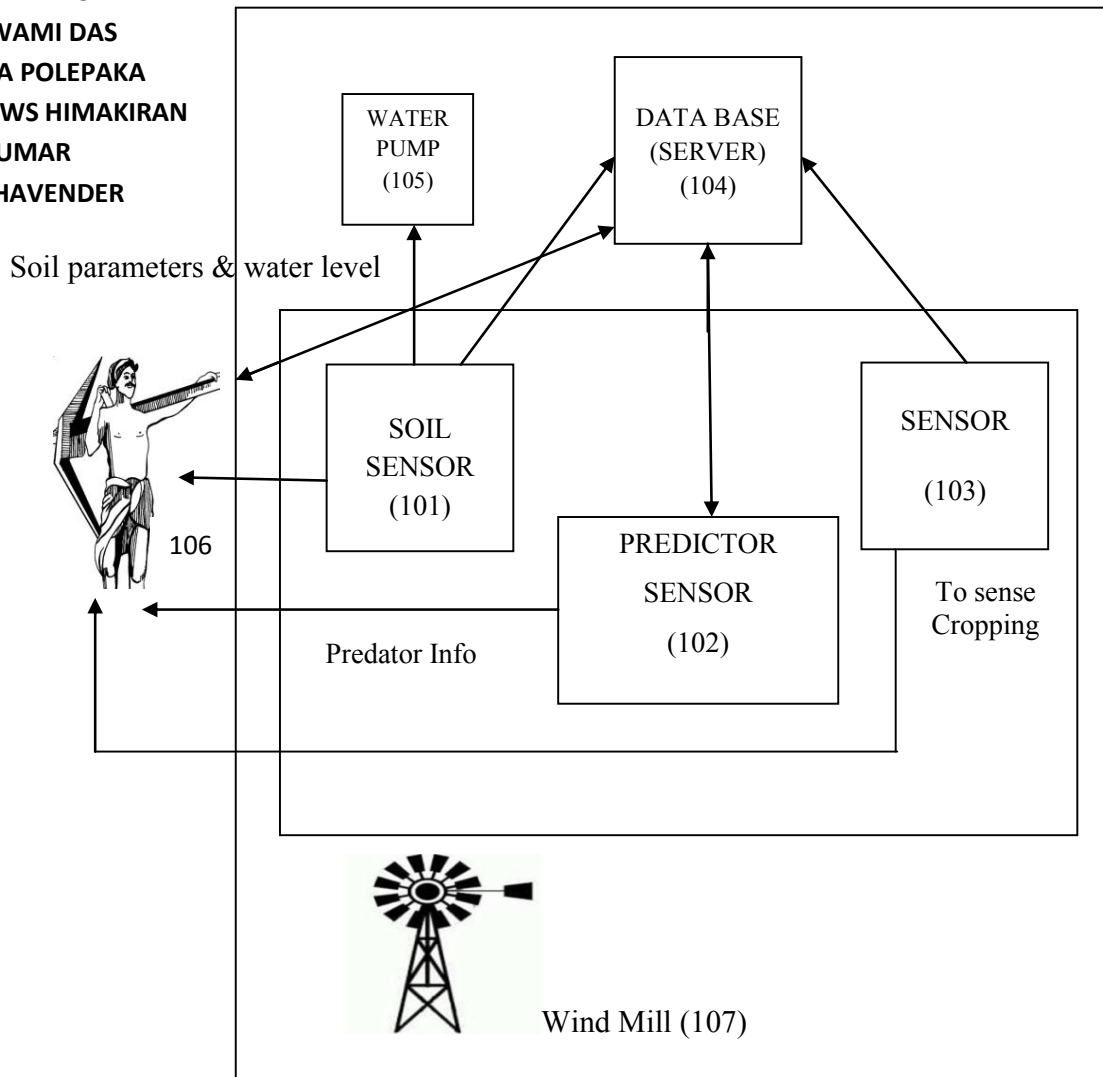


Fig 1: Schematic view of system

Dated: 21/12/2019

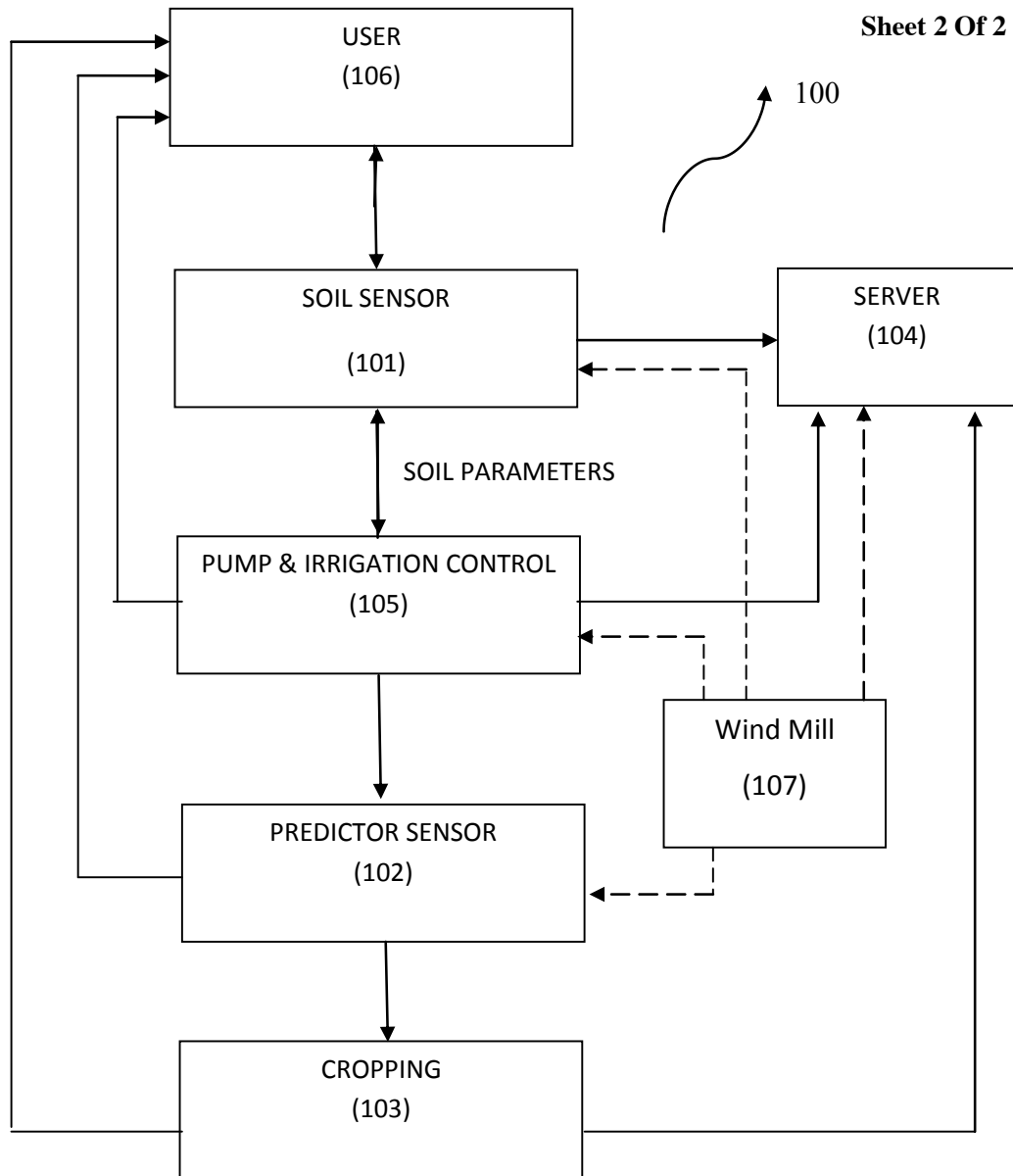


Fig 2: Block Diagram

Dated: 21/12/2019

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