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### Patent Search

Invention Title	IBDD-CROP HEALTH: IOT- BASED DEVICE TO DETECT THE CROP HEALTH
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Application Number	202041012385
Application Filing Date	22/03/2020
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Priority Date	
Field Of Invention	MECHANICAL ENGINEERING
Classification (IPC)	A01G0022000000,A01G0007000000,A01G0013060000,A01G0025160000,A01M0021040000

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**Abstract:**

Patent Title: IBDD-Crop Health: IoT- BASED DEVICE TO DETECT THE CROP HEALTH ABSTRACT The invention "IBDD-Crop Health "The multi-sensor device comprises a housing containing multiple sensor modules for capturing and transmitting sensor data for plants in a crop. A control unit within the housing is operable to control the sensor modules, and a communications interface is connected to the control unit for transmitting data from said plurality of sensor modules. The sensor modules can include a physiological sensor, a surface analysis sensor, and chemical sensor. The multi-sensor device can be used as a hand-held device or mounted to a IoT- Based mobile platform for use in an automated crop monitoring system. All of you know in India when food and other crops are grown on a large scale, either in protected cultivation (such as in a greenhouse) or outdoors, growers face several challenges. For example, it is generally difficult for a grower to predict the quality and yield of the crop at a stage in crop development when intervention will still be feasible and useful. Also it can be difficult for a grower to know if, where and when the crop has a problem (such as related to a pest, disease, water, other biotic stress or nutritional deficit), and the extent of the problem, until it is readily visible to human scouts.

**Complete Specification**

Claims:WE CLAIMS

1. The invention "IBDD-Crop Health "The multi-sensor device comprises a housing containing multiple sensor modules for capturing and transmitting sensor data for plants in a crop. A control unit within the housing is operable to control the sensor modules, and a communications interface is connected to the control unit for transmitting data from said plurality of sensor modules. The sensor modules can include a physiological sensor, a surface analysis sensor, and chemical sensor. The multi-sensor device can be used as a hand-held device or mounted to a IoT- Based mobile platform for use in an automated crop monitoring system. All of you know in India when food and other crops are grown on a large scale, either in protected cultivation (such as in a greenhouse) or outdoors, growers face several challenges. For example, it is generally difficult for a grower to predict the quality and yield of the crop at a stage in crop development when intervention will still be feasible and useful. Also it can be difficult for a grower to know if, where and when the crop has a problem (such as related to a pest, disease, water, other biotic stress or nutritional deficit), and the extent of the problem, until it is readily visible to human scouts. A multi-sensor device for capturing and transmitting sensor data for plants in a crop, said multi-sensor device comprising: a housing comprising a plurality of interior cavities and at least one mount on an exterior surface thereof; a plurality of exchangeable sensor modules, each sensor module occupying one of said plurality of cavities, and each sensor module for sensing at least one plant-related parameter when said sensor module is positioned proximate to a plant; a control unit contained within the housing, the control unit operable to control operation of said plurality of sensors; a location tracking system contained within the housing, the location tracking system connected to said control unit for tracking the location of said multi-sensor device; a communications interface contained within the housing, the communications interface connected to said control unit for transmitting and receiving information, said communication interface operable to transmit data from said plurality of sensor modules; a user-interface connected to said control unit; and an electrical power connector for connecting said multi-sensor device to a power

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Page last updated on: 26/06/2019



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Department of Industrial Policy & Promotion,  
Ministry of Commerce & Industry,  
Government of India

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#### Application Details

APPLICATION NUMBER	202041012385
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	22/03/2020
APPLICANT NAME	1 . Dr. B. MADHURAVANI (PROFESSOR) 2 . MRS. B DHANALAXMI (ASSISTANT PROFESSOR) 3 . Dr. CH. SRINIVASULU (PROFESSOR) 4 . MR. A. PRAVEEN (ASSISTANT PROFESSOR) 5 . Dr. CHANNAPRAGADA RAMA SESHAGIRI RAO (PRINCIPAL & PROFESSOR) 6 . MR. P. PHANIRIKANTH (BUSINESS DEVELOPMENT OFFICER) 7 . MR. S. VENKATA RAMANA 8 . MR. T.S. SRINIVAS (ASSOCIATE PROFESSOR) 9 . DR. RAMESH SOLANKI (ASSISTANT PROFESSOR) 10 . MR. N V KRISHNA RAO (ASSISTANT PROFESSOR)
TITLE OF INVENTION	IBDD-CROP HEALTH: IOT- BASED DEVICE TO DETECT THE CROP HEALTH
FIELD OF INVENTION	MECHANICAL ENGINEERING
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ADDITIONAL-EMAIL (As Per Record)	dinnu18@gmail.com
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	--
PUBLICATION DATE (U/S 11A)	15/05/2020

#### Application Status

APPLICATION STATUS	<b>Awaiting Request for Examination</b>
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➡ Filed ➡ Published ➡ RQ Filed ➡ Under Examination ➡ Disposed

In case of any discrepancy in status, kindly contact [ipo-helpdesk@nic.in](mailto:ipo-helpdesk@nic.in)

<b>FORM 1</b> 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))	<b><u>(FOR OFFICE USE ONLY)</u></b> Application No: Filing Date Amount of Fees Paid: CBR NO: Signature:
1. APPLICANTS REFERENCE / IDENTIFICATION NO. (AS ALLOTTED BY OFFICE)	

**2. TYPE OF APPLICATION [Please tick (✓) at the appropriate category]**

<b>Ordinary (✓)</b>		Convention ( )		PCT-NP ( )	
Divisional ( )	Patent of Addition ( )	Divisional ( )	Patent of Addition ( )	Divisional ( )	Patent of Addition ( )

**3A. APPLICANT(S):**

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**3B. CATEGORY OF APPLICANT [Please tick ( ✓ ) at the appropriate category]**

<b>Natural Person ( ✓ )</b>	<b>Other than Natural Person ( )</b>		
	<b>Small Entity ( )</b>	<b>Startup ( )</b>	<b>Others ( )</b>

**4. INVENTOR(S): [Please tick ( ✓ ) at the appropriate category]**

<b>Are all the inventor(s) same as the applicant(s) named above?</b>	<b>Yes ( ✓ )</b>	<b>No ( )</b>
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If "No", furnish the details of the inventor(s) **N.A**

Name	Nationality	Country of Residence	Address
NA	NA	NA	NA

**5. TITLE OF THE INVENTION:**

**IBDD-Crop Health: IoT- BASED DEVICE TO DETECT THE CROP HEALTH**

<b>6. AUTHORISED REGISTERED</b>		NA
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<b>PATENT AGENT(S)</b>	
<b>ADDITIONAL PATENT AGENTS</b>	NA

<b>7. ADDRESS FOR SERVICE OF APPLICANT/ PATENT AGENT(S) IN INDIA</b> Dr. B. MADHURAVANI (PROFESSOR)  Address: DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, MLR INSTITUTE OF TECHNOLOGY, LAXAMAN REDDY AVENUE, DUNDIGAL 500 043, MEDCHAL DISTRICT, HYDERABAD, TELANGANA, INDIA. E- Mail:madhuravani.peddi@gmail.com Mo no: 8978903739	E- Mail: madhuravani.peddi@gmail.com Mo no: 8978903739 Secondary: Mail:dinnu18@gmail.com 9866546280
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**8. IN CASE OF APPLICATION CLAIMING PRIORITY OF APPLICATION FILED IN CONVENTION COUNTRY, PARTICULARS OF CONVENTION APPLICATION: N.A**

Country	Appln. Number	Filing Date	Name of the Applicant	Title of the Invention	IPC (as classified in the convention country)
NA	NA	NA	NA	NA	NA

**9. IN CASE OF PCT NATIONAL PHASE APPLICATION, PARTICULARS OF INTERNATIONAL APPLICATION FILED UNDER PATENT CO-OPERATION TREATY (PCT):**

International application number	International filing date as allotted by the receiving office.
NA	NA

**10. IN CASE OF DIVISIONAL APPLICATION FILED UNDER SECTION 16, PARTICULARS OF ORIGINAL (FIRST) APPLICATION : N.A**

Original (first) application number	Date of filing of Original (first) application
N.A.	N.A.

**11. IN CASE OF PATENT OF ADDITION FILED UNDER SECTION 54, PARTICULARS OF MAIN APPLICATION OR PATENT: N.A**

Main application / patent Number	Date of filing of main application
N.A.	N.A.

**12. DECLARATIONS:**

**(i) Declaration by the Inventor:**

(In case the applicant is an assignee: the inventor(s) may sign herein below or the applicant may upload the assignment or enclose the

assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period).

We, the above named inventor are the true & first inventor for this invention and declare that the applicant herein is my assignee or legal representative:

**NA**

**(ii) Declaration by the applicant/s in the convention country:**  
**(In case the applicant in India is different than the applicant in the convention country:** the applicant in the convention country may sign herein below or applicant in India may upload the assignment from the applicant in the convention country or enclose the said assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period)

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

**(iii) Declaration by the applicants:**

We, the applicants hereby declare that: -

1. We are in possession of the above-mentioned invention.
2. The **Complete Specification** relating to the invention is filed with this application.
3. The invention as disclosed in the specification uses the biological material from India and the necessary permission from the competent authority shall be submitted by us before the grant of patent to us: **N.A.**
4. There is no lawful ground of objection to the grant of the patent to me/ us.
5. We are the assignees or legal representatives of true and first inventors:
6. The application or each of the applications, particulars of which are given in Para - 8 was the first application in convention country/countries in respect of our invention: **N.A.**
7. We claim the priority from the above mentioned application filed in convention country/countries and state that no application for protection in respect of the invention had been made in a convention country before that date by us or by any person from which we derive the title: **YES**
8. Our application in India is based on international application under Patent Cooperation Treaty (PCT) as mentioned in Para-9: **N.A.**
9. The application is divided out of our application particulars of which is given in Para-10 and prays that this application may be treated as deemed to have been filed on N.A. Under sec.16 of the Act: **N.A.**
10. The said invention is an improvement in or modification of the invention particulars of which are given in Para-11 :**N.A.**

**FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION**

**(a) Form 2**

Item	Details	Fee	Remarks
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Complete specification) #	No. of pages:		
Claim(s)	No. of claims: No. of pages:		
Abstract	No. of pages:		
Drawing(s)	No. of drawings: No. of pages:		

# In case of a complete specification, if the applicant desires to adopt the drawings filed with his provisional specification as the drawings or part of the drawings for the complete specification under rule 13(4), the number of such pages filed with the provisional specification are required to be mentioned here.

1. Complete specification (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies) **N.A**
2. Sequence listing in electronic form **N.A**
3. Drawings (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies) **N.A**
4. Statement and Undertaking on Form-3
5. Declaration of Inventor ship on Form-5
6. Request For Publication Form9 , 2750.Rs
7. Form18 Examination Request, 4400.Rs
8. Power of Authority
9. Other Form 4 to 31 According to needed can fill.

Total fee Rs ...../- **in Cash/ Banker's Cheque /Bank Draft bearing No.....**

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We hereby declare that to the best of my knowledge, information and belief the facts and matters stated herein are correct and I request that a patent may be granted to me for the said invention.

**Dated this day of:21/3/2020**

Dr. B. MADHURAVANI (PROFESSOR)
MRS. B DHANALAXMI (ASSISTANT PROFESSOR)
Dr. CH. SRINIVASULU (PROFESSOR)
MR. A. PRAVEEN (ASSISTANT PROFESSOR)
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DR. RAMESH SOLANKI (ASSISTANT PROFESSOR)
MR. N V KRISHNA RAO (ASSISTANT PROFESSOR)

To,  
The Controller of Patent,  
The Patent Office, at .....