



DST-AMRITA
**TECHNOLOGY
ENABLING
CENTRE**

DST- AMRITA TEC @ AMRITA

NEWSLETTER

July - December, 2020



TEC@Amrita signed an MoU with Bangalore Chamber of Industry and Commerce in October, 2020. TEC will partner with BCIC in organising events for Industry, Academia, MSMEs, Start-ups and students. The MoU will lay the path for a deeper Industry - Academia collaboration.



Mr. Joydeep Nag joined TEC@Amrita as the Head & Advisor in November, 2020. He brings deep experience in management, finance, healthcare and other allied areas.



Amrita Spandanam mobile app works in conjunction with the Amrita Spandanam wearable health monitoring device. The Amrita Spandanam app helps in monitoring users critical health parameters such as BP, Sugar, Blood Oxygen levels, Heart rate, ECG etc. The parameters are transmitted to the central server in real-time.



R&D solutions in the area of Pharma, biotechnology, bioinformatics, biomedical engineering, data sciences



SCARA robot with a pneumatic gripper. Fingers made of Hyper-elastic Materials for the Poultry Industry. Applications include Palletization, pick & place and Gradation of eggs in weights.



PAPR - COVID Innovation. Commercialized and available through distributors. This is also available on FLIPKART



Roof and Floor tiles using recycled plastic raw materials: RCUBE Plastics prototyped floor tiles of 1 inch thickness using waste plastic and natural fibers.



R&D solutions in the area of Pharma, biotechnology, bioinformatics, biomedical engineering, data sciences



Smart devices let you automatically collect consumption, diagnostic and status data from your electric meter and then transfer that data to a cloud server/UI for billing and analysis

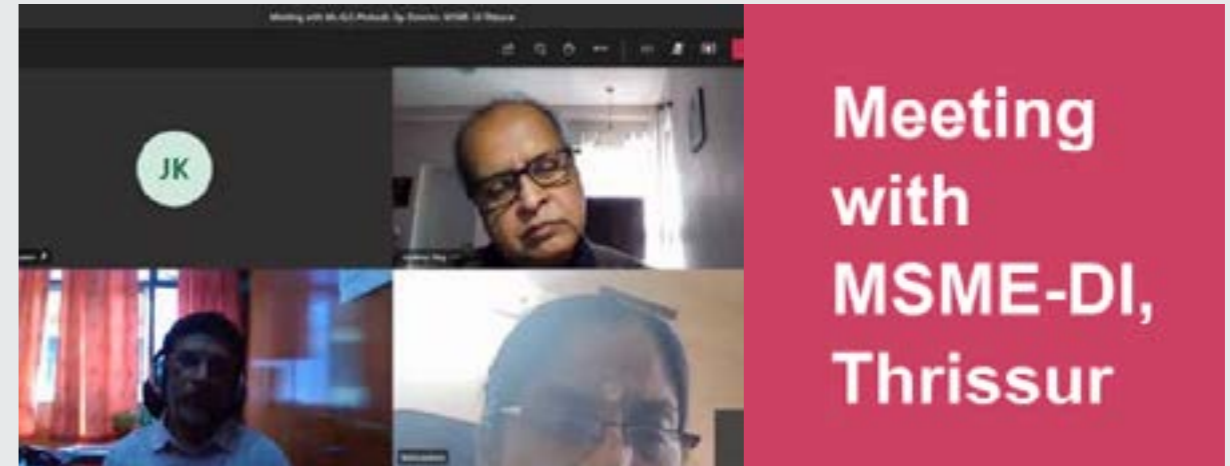


Bar Bending Machine that is a haptic simulator to learn bar bending. Utilized in construction business and L&T is one of the commercialization partners.

IMPORTANT EVENTS

Industry Academia Collaboration for ourth Industrial Revolution

MSME-DI, Thrissur organised a webinar on 'Industry Academia Collaboration for Fourth Industrial Revolution' on 19th November 2020 from 10.30AM - 1.00PM. 100+ participants from various stake holders attended the event. TEC@ Amrita participated as one of the panelists. She spoke about the need of effective industry-academia collaboration and TEC@Amrita's initiatives towards bridging the gap between the industry and academia.



A meeting was organised with Mr. G.S. Prakash, Deputy Director, MSME-DI on 27-11-2020. The main agenda was to discuss the progress in signing MoU with MSME-DI and TEC@Amrita taking an active role in District Industry - Academic coordination (DIAC) forum. A regular review mechanism was decided to setup between MSME-DI Thrissur and TEC to review progress regularly.

UPCOMING EVENTS

TEC@Amrita has planned a webinar series in association with BCIC, MSME Directorates of Kerala and Karnata for MSMEs and aspiring entrepreneurs, starting from January, 2021 to December, 2021. These webinars are meant to provide micro learnings in the areas of entrepreneurship and business development. The main topics of webinars are Entrepreneurship, Management, Rural Development and so on.

"An Entrepreneur's Tale of Belief, Grit, Guts and Gumption"

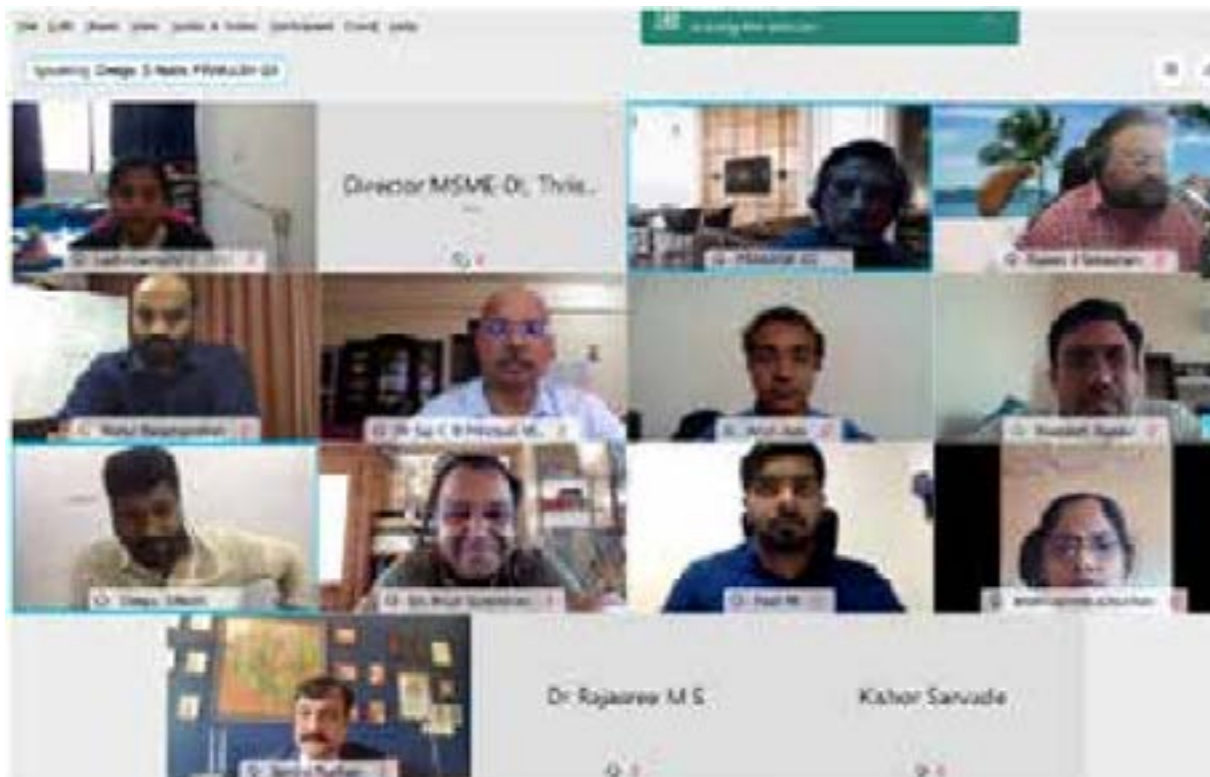
*By Archish Mathe, Co-founder Zishta
Date: 27-01-2021*

"Growing Your Money"

*By Nanda Kishore, Co-founder & CMO
Dyota Solutions*

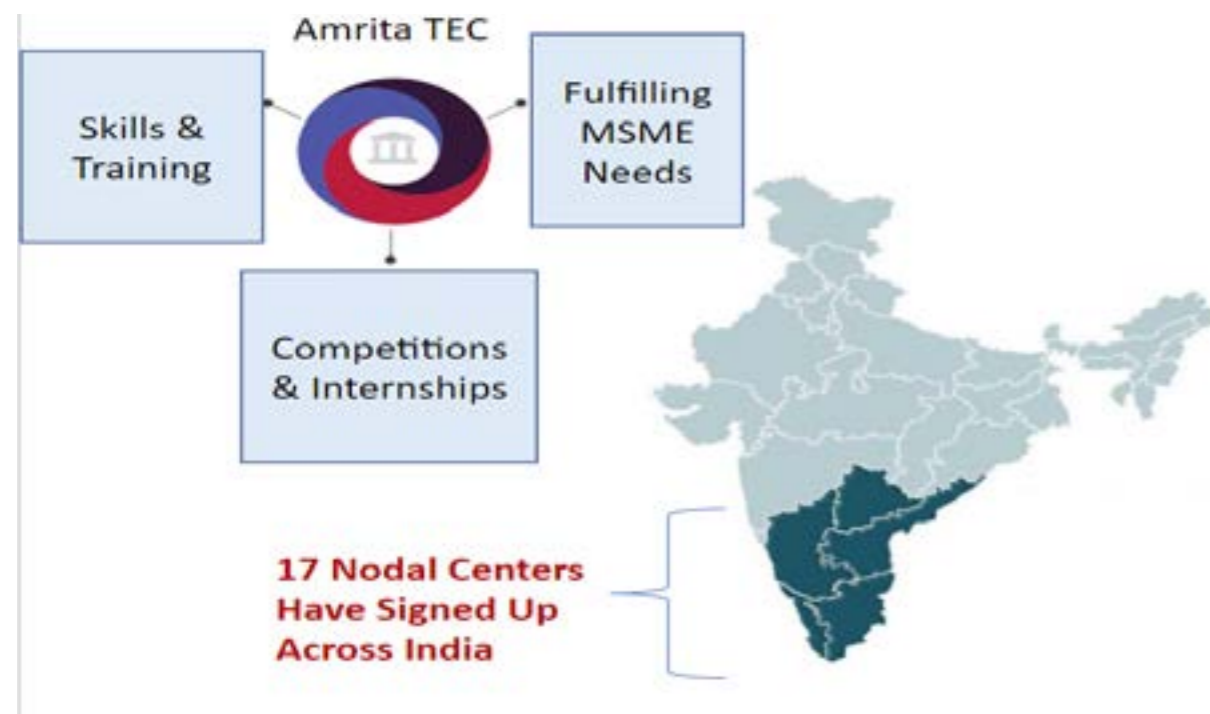
"Rural Marketing"

*By Harish Lalchandani, CMO, FMD,
Mahindra & Mahindra*



Creation of Nodal Centres of DST-Amrita TEC Centre

To enhance the eco-system of Amrita TEC, 17 institutes have formally expressed their interest and will be collaborating on : 1) Emerging Technologies 2) Creation of Products 3) Intellectual Property and 4) Business Knowhow



TEC@Amrita 2020 Roundup

MoU Signed

TEC@Amrita signed an MoU with Bangalore Chamber of Industry and Commerce

EVENTS CONDUCTED IN 2020

TEC@Amrita conducted a one day event on Intellectual Property Rights on 7th January, 2020 in association with MSME-DI, Thrissur. Around 200 MSMEs and students participated in the event.

TEC@Amrita conducted/collaborated a series of webinars on upcoming technologies for students along with faculty of various dept of Amrita Vishwa Vidyapeetham during pandemic shutdown.

AMRITA VISHVA VIDYAPEETHAM
Institution of Eminence
University Grants Commission

FREE WEBINAR

Enhancing Geospatial Monitoring of Natural Hazards using IoT, Geophysics & Remote Sensing

Speakers

- Dr. Sebastian Unlammann, Postdoctoral Researcher, Lawrence Berkeley National Laboratory (LBNL), Berkeley, USA
- Dr. Maneesha Sudhakar, Director, AmritaWNA, Dean, Amrita Center for International Programs

Date & Time
09-Jun-2020, Tuesday
10:00 AM, IST

Registration Link: <https://bit.ly/amritaWNAgeo2>

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University Grants Commission

FREE WEBINAR

MACHINE LEARNING & WIRELESS COMMUNICATION

Speakers

- Dr. Arpita Thakre, Assistant Professor, Dept. of ECE, Amrita School of Engineering, Bangalore, Senior Member IEEE, SERB Grant recipient.
- Dr. K. V. Srinivas, Ericsson Canada Inc., Ottawa, Canada.

WED 10TH JUN TIME: 4.00 PM

Registration Link: <https://bit.ly/7T XZe00>

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University Grants Commission

FREE WEBINAR

APPLICATIONS OF POWER ELECTRONICS IN ENGINEERING

Speakers

- Dr. R. Subramanian, IIT Madras
- Dr. R. Subramanian, IIT Madras
- Dr. R. Subramanian, IIT Madras
- Dr. R. Subramanian, IIT Madras
- Dr. R. Subramanian, IIT Madras

Moderator
Dr. K. V. Srinivas, Assistant Professor

Date & Time
22-Jun-2020, Monday
10:30 AM, IST

Registration Link: <https://forms.gle/Vhr0UUA3Z0F7PWA>

TEC@Amrita

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University Grants Commission

Free Webinar

DATA SCIENCE DEMYSTIFIED

DATE & TIME
26 June 2020, Friday
10:00 AM

SPEAKER
Dr. Vivek Menon, Associate Professor, Department of CSE, Amritapur.

Registration Link: <https://forms.gle/2rvm5D7NA5TnRP>

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FREE WEBINAR

Foam Concrete – Thermal Insulation Material

Date & Time
13-Jun-2020, Saturday
11:00 AM, IST

Speakers

- Dr. Mini K M, Professor & Director, Department of Civil Engineering, Amrita School of Engineering, Coimbatore
- Dr. Dhanya Sathyan, Asst. Professor, Department of Civil Engineering, Amrita School of Engineering, Coimbatore
- Mr. Akshay Nadger, Sr. Design Engineer, L&T, Berlin Engineer, DDA, Madras, Technical Consultant – Civil Construction

Registration Link: <https://forms.gle/GaZ5UEN19K00P957>

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University Grants Commission

FREE WEBINAR

DESIGN OF EXPERIMENTS – A SMART STRATEGY FOR EXPERIMENTATION

Speakers

- Dr. Meera Balachandran, Associate Professor, Department of Chemical Engineering & Materials Science, PhD from Amrita Vishwa Vidyapeetham
- Dr. Sriram Bevanathan, Professor, Department of Chemical Engineering and Materials Science, PhD from Iowa State University, USA

Date & Time
15-Jun-2020, Monday
10:30 AM, IST

Registration Link: <https://forms.gle/geAWGTZbk9CCLN344>

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Institution of Eminence
University Grants Commission

FREE WEBINAR

DEEP LEARNING

DATE & TIME
27 June 2020, Saturday
11:00 AM

SPEAKER
Dr. T. Senthil Kumar, Associate Professor, Department of CSE

Registration Link: <https://forms.gle/pw8S5tWRvFgYHVB>

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University Grants Commission

Free Webinar

AN ENTREPRENEURIAL DISRUPTION TO COMBAT COVID 19 THROUGH NANOTECHNOLOGY

DATE & TIME
03 July 2020, Friday
04:00 PM

SPEAKER
Dr. Swepan Kumar Ghosh, Director, IIT Madras

Registration Link: <https://forms.gle/DJ6M0W8Hy3qN5TnF>

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Institution of Eminence
University Grants Commission

FREE WEBINAR

BEHIND TODAY'S AUTOMOTIVE EMBEDDED CONTROL SYSTEM TRENDS – TECHNOLOGIES DRIVING THE CHANGE

Speaker
Mr. R. Vijayalayan, Manager, Auto Industry Field Application Engineering Team, Mathworks India Pvt Ltd

Date & Time
18-Jun-2020, Thursday
3:30PM, IST

Registration Link: <https://forms.gle/oaq1rbjMmJenRfW57>

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University Grants Commission

FREE WEBINAR

GEO-SPATIAL THINKING: AN INTRODUCTION TO GIS & ITS APPLICATIONS

Speaker
Dr. Sajith Vezhapparamba, Asst. Professor, Amrita Center for Wireless Networks & Applications (AmritaWNA)

Date & Time
20-Jun-2020, Saturday
10:00 AM – 11:00 AM, IST

Registration Link: <https://bit.ly/AmritaWNAgeospatial>

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University Grants Commission

FREE WEBINAR

CAREER OPPORTUNITIES IN GEOINFORMATICS

SPEAKER
Dr. Tariq Rashid
• Visiting Professor and Consultant in Geoinformatics, Amrita
• VP & CTO, Geoinformatics LLC, Wapenam, USA
• Former Senior Research Professor & Director of Geoinformatics, Indiana University, USA

DATE & TIME
04 July 2020, Saturday, 10:00 AM

Registration Link: <https://bit.ly/AmritaGeospatial>

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AMRITA VISHVA VIDYAPEETHAM
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FREE WEBINAR

CHALLENGES IN REALIZING SELF DRIVING VEHICLES & VARIOUS CONTROL APPLICATIONS

SATUR DAY JULY 11 10 AM

E-certificates will be issued to all participants

Dr. Gopinath Seivraj
Senior Technical Architect – AD/ADAS Practice Transformation Business Unit (TSU) Embedded Product Development (EPC)

Registration Link: <https://forms.gle/DQJenmy7957E3iu9>

TEC @ Amrita

(12) **United States Patent**
Megalingam et al.

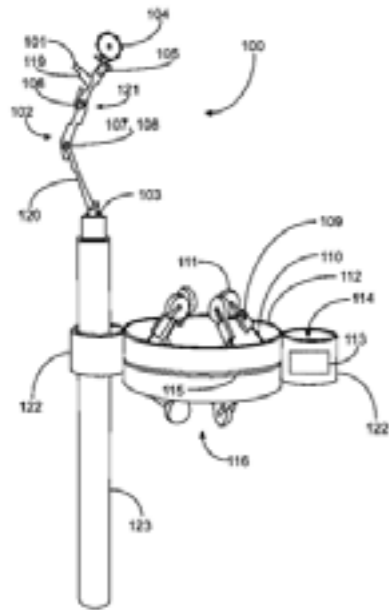
(10) **Patent No.:** US 10,674,667 B2
(45) **Date of Patent:** Jun. 9, 2020

(54) **METHOD AND APPARATUS FOR WIRELESS NETWORK-BASED CONTROL OF A ROBOTIC MACHINE**

A01D 46/30; B25J 5/007; B25J 5/02; B25J 11/0045; B25J 13/006; B25J 13/06; B25J 19/023; A01G 23/0955; Y10S 901/02

(71) Applicant: **Amrita Vishwa Vidyapeetham**, Tamil Nadu (IN)

See application file for complete search history.



(57) **ABSTRACT**

A harvesting system has a climbing unit with a body driven by traction wheels, a control unit, an articulated arm with a cutting implement at an extremity, a video camera focused on the cutting implement, and a computerized portable control station having a display and a user interface with inputs operable to control driving the traction wheels of the climbing unit, the articulation of the articulated arm, and the cutting implement. Video streamed in real time from the video camera is displayed on the display screen, and a user viewing the video display operates the inputs to position the cutting implement to cut a stem of a fruit or nut in the tree.

(12) **United States Patent**
Haddadi et al.

(10) **Patent No.:** US 10,824,833 B2
(45) **Date of Patent:** Nov. 3, 2020

(54) **OPTICAL POLLING PLATFORM DETECTION SYSTEM**

H04Q 2011/0033; H04Q 11/0067; H04Q 11/0003; H04Q 2011/0039; H04Q 2011/0094; H04Q 11/00; H04Q 2011/0088

(71) Applicant: **AMRITA VISHWA VIDYAPEETHAM**, Kollam (IN)

USPC 235/462.11, 462.15; 705/50

(57) **ABSTRACT**

A method and system for an optical polling platform is provided. An optical polling server system receives an image of one or more augmented reality (AR) tag markers associated with a poll. Each AR tag marker is encoded with data, which includes at least a user identifier and a polling option. The system processes the image to identify the one or more AR tag markers in the captured image and detects edges in the image by traversing vertically along image columns. The system identifies potential AR tag markers from final edges based on contrast in pixels of the detected first set of edges and associated neighboring pixels. The AR tag markers are identified from the identified potential AR tag markers by sampling bit areas. Further, the system decodes the one or more AR tag markers to determine user identifier and polling option selected by the user identifier.



(12) **United States Patent**
Purnaprajna et al.

(10) **Patent No.:** US 10,628,223 B2
(45) **Date of Patent:** Apr. 21, 2020

(54) **OPTIMIZED ALLOCATION OF TASKS IN HETEROGENEOUS COMPUTING SYSTEMS**

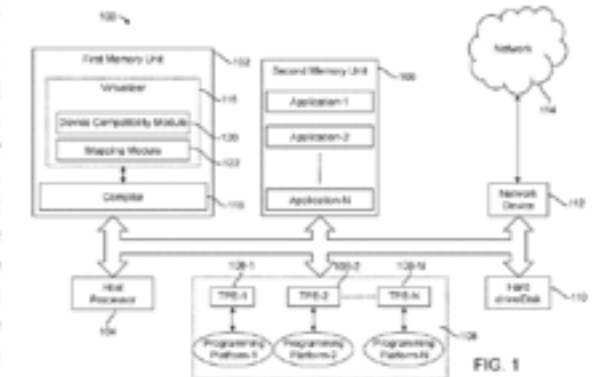
(58) **Field of Classification Search**
CPC G06F 9/52
USPC 718/104
See application file for complete search history.

(71) Applicant: **AMRITA VISHWA VIDYAPEETHAM**, Bangalore, Karnataka (IN)

(56) **References Cited**

(57) **ABSTRACT**

A method and system for automatically optimizing task allocation in heterogeneous computing systems is disclosed. The system comprises a plurality of target processing elements and a host processor. The host processor is configured to receive one or more requests from one or more applications for task allocation. During compilation, a virtualizer extracts parameters of kernels of the one or more applications and receives the architectures of the plurality of target processing elements. The virtualizer comprises a device conformability module and a mapping module. The device conformability module provides a prediction on execution time of the kernels for each of the architectures based on the parameters. The mapping module compares the predictions and indicates a ranking of the plurality of target processing elements based on least execution time for each of the kernels and determines a combination of the plurality of target processing elements based on the mapping prediction to optimize the task allocation.



(12) **United States Patent**
Bhavani

(10) **Patent No.:** US 10,555,460 B2
(45) **Date of Patent:** Feb. 11, 2020

(54) **AUTOMATED DRONE FOR HARVESTING PRODUCE**

(56) **References Cited**

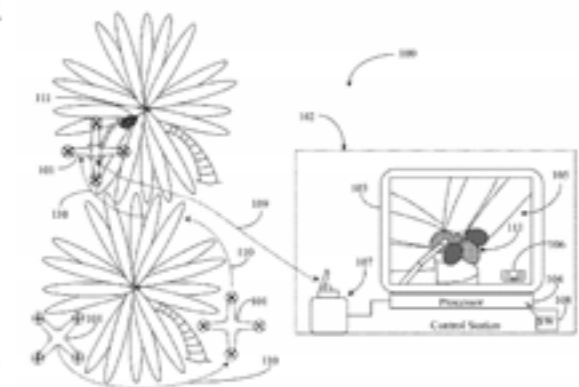
(71) Applicant: **Amrita Vishwa Vidyapeetham**, Tamil Nadu (IN)

U.S. PATENT DOCUMENTS

3,606,750 A * 9/1971 Walker A01D 46/28 56/331

(57) **ABSTRACT**

A system for harvesting produce from a tree has a drone capable of hovering, a video camera gathering visual data of movement, a cutting implement, a remote control station with a display screen, wireless circuitry, and input mechanisms to control movement of the drone and operation of the cutting implement, and circuitry in the body of the drone enabling two-way communication with the remote control station, transmission of video data from the video camera, and response to commands from the remote control station. The video data from the camera on the drone is displayed on the display screen of the remote control station, and an operator viewing the display screen operates the input mechanisms, maneuvering the drone to position the cutting implement relative to produce in the tree, and triggers the cutting implement by command, severing a stem to separate the produce, causing the produce to fall from the tree.



(12) **United States Patent**
Ramesh et al.

(10) **Patent No.:** **US 10,542,889 B2**
(45) **Date of Patent:** **Jan. 28, 2020**

(54) **SYSTEMS, METHODS, AND DEVICES FOR
REMOTE HEALTH MONITORING AND
MANAGEMENT**

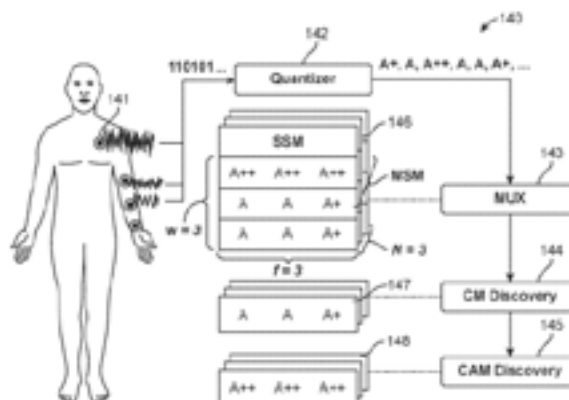
*A61B 5/14532 (2013.01); A61B 5/7275
(2013.01); G16H 10/60 (2018.01)*

(71) Applicant: **AMRITA VISHWA
VIDYAPEETHAM, Kollam (IN)**

(58) **Field of Classification Search**
CPC ... A61B 5/0024; A61B 5/0006; A61B 5/0031;
A61B 5/14532; A61B 5/0022; A61B
5/7275; G16H 80/00; G16H 10/60
USPC 340/870.02

(57) **ABSTRACT**

A remote health monitoring system, method and device is disclosed. The systems utilize one or more sensors, data aggregation and transmission units, mobile computing devices, processing, analytics and storage (PAS) units, and a framework based on a novel location- and power-aware communication systems and analytics to notify and manage patient health. Methods to transmit data to a PAS unit through the patients' smart phone that is connected to internet, abnormality detection in the data, advanced analytical diagnostics and communication system between the health service provider (HSP) and patient are also provided. The health monitoring systems, methods and devices allows for continuous monitoring of the patient without disrupting their normal lives, provides access even in sparsely connected and remote regions which lack good healthcare facilities, allows intervention by specialized practitioners, and sharing of resource or information in the existing healthcare facilities.



*If anyone has innovations
for technology transfer and
commercialization, please
contact*

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