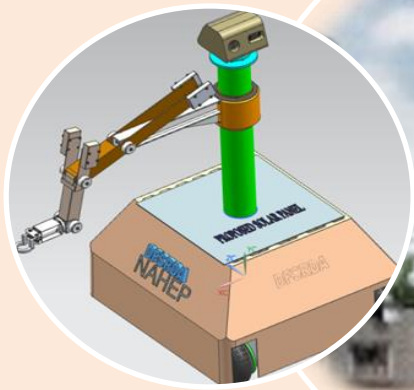




Centre of Excellence for Digital Farming Solutions for Enhancing Productivity by Robots, Drones and AGVs

NAHEP-CAAST- DFSRDA, VNMKV, Parbhani

Automated Guided Vehicle Division



Vasantrao Naik Marathwada Krishi Vidyapeeth

Parbhani-431402, (M.S)

Annual Report of AGVs Division

About

In the present work, an automated guided vehicles (AGVs) are proposed to replace manual task wherever the possibility across agricultural systems and allied sciences. The proposed automation system has the ability to replace manual labor in hazardous working areas of farms on appropriate positions automatically or with less manpower needed. The AGV is presented to navigate independently through the row crops in a field, aided with different sensors and a robotic arm with a gripper to achieve various tasks. Optimizing AGV's size is really significant while it is used in any material handling like in Agriculture purposes. Thus, this AGV will be constructed in a way that the size would significantly promote energy consumption and it does not impact the operation field and performance, by that material handling system such as space utilizing, energy and simplification principle are developed. AGVs division consist of 2 portfolio's Food Processing Automation (FPA) and Smart Portable Machine (SPM). All activities were performed under this portfolio's.

Objectives

- ✓ Establishment of advanced laboratories for Designing & developing customize low cost Agri-AGVs
 - i) Provide Technical Knowledge to agri PG/Ph.D students on CAD/CAE tools for designing of different smart farming machines and digital farming equipment.
 - ii) Impart Knowledge for Hydraulic and Pneumatic technologies in food processing and customized farming operations.
- ✓ Endeavor to develop a research performance evaluation system in SPM, FPA to encourage the Researchers, PG/Ph.D students to carry out research activities in AGV division
- ✓ Raise the capacity among the faculties/scientist/PG-Ph.D. students/ rural entrepreneurs for the development and adoption of the mechatronics, precision agricultural techniques and low cost automation.
- ✓ Development of different mobile applications, software programs, Decision support systems etc. on digital farming for effective dissemination of advanced farming technologies among different stake holders.
- ✓ Conduction of National/ International seminars, conferences/exhibitions/ stakeholder interface meetings for improving students and faculty research approach.

Assets

- CAD/CAE Lab
- AGV Engineering Workshop
- Custom Fabrication Lab
- Hydraulics & Pneumatic Labs
- Mechatronics Lab
- Food processing Unit

Activities planned under Agri-AGVs

1. Designing of Driverless vehicles/Machine for performing various field operations
2. Weed crop monitoring, controlling & maintenance
3. Reducing manual labour cost, increasing productivity
4. Harvesting from crop fields and orchards
5. Manufacturing of low cost customized AGV

Elective courses under Agri-AGVs

1. Digital farming solutions for smart farming practices.
2. Introduction to AGVs
3. Advances in agricultural mechanization
4. Rapid prototype design & analysis of autonomous vehicles.
5. CAD/CAM/CAE application for Smart portable machines.

Scope of AGV Applications

- High Speed Sorting.
- Food processing and automation.
- Material handling & Transportation.
- Production Support Systems.
- Sorting grains, Distribution Warehouse Control & Management.
- Directly in production field lines.
- Thematic research area of FPA is food processing line automation.

DFSRDA-AGAGV: FIRST SEMESTER (COURSE STRUCTURE)

Course and Examination Scheme of Certificate course (DFSRDA-AGAGV)

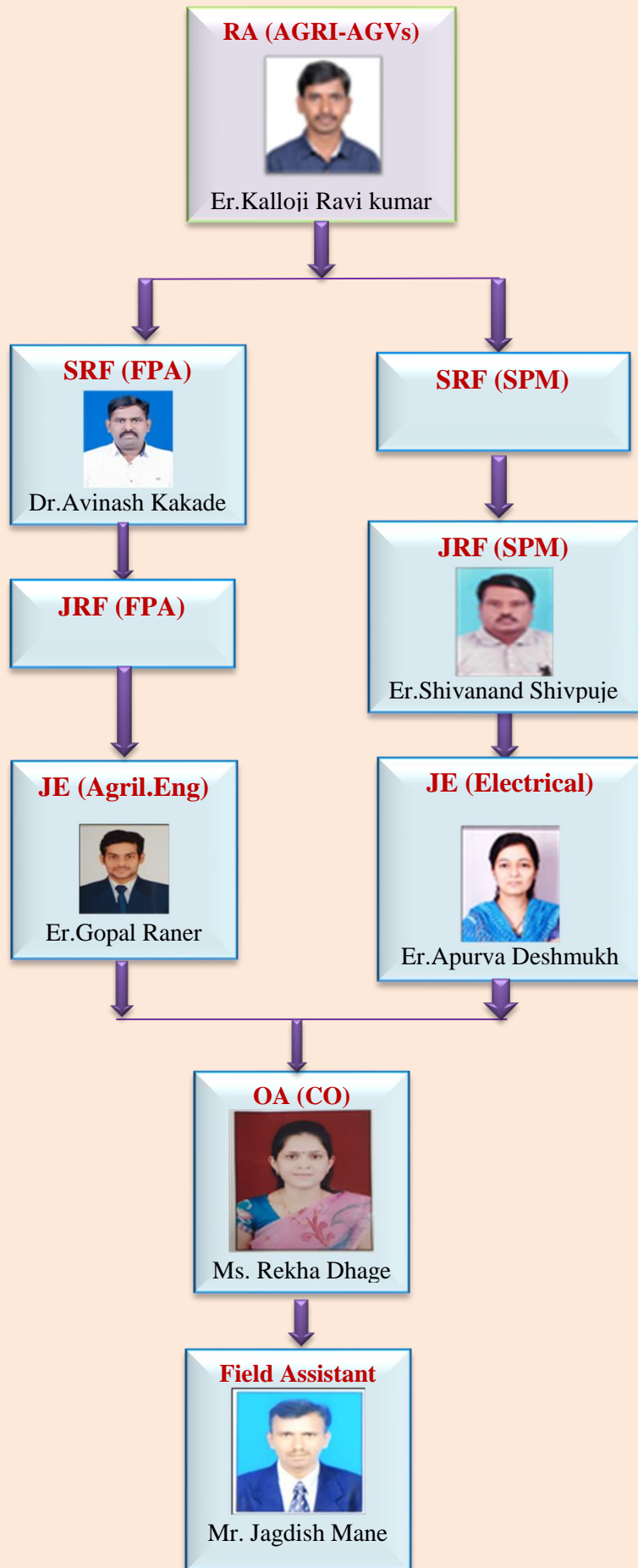
Subject Code	Subject Name	Teaching Scheme			Examination Scheme								
		Hours per Week		No. of Credits	Theory					Practical			
		Theory	Practical		Duration of Paper (Hrs.)	Max. Marks University Assessment	Max. Marks Internal Assessment	Total Marks	Min. Passing Marks	Max. Marks University Assessment	Max. Marks Internal Assessment	Total Marks	Min. Passing Marks
DFSRDA-AGAGV-101	Fundamentals of Agri-AGV	04	-	2	3 Hrs	80	20	100	40	-	-	-	-
DFSRDA-AGAGV-102	CAD/CAM in Agri-AGV	04	-	2	3 Hrs	80	20	100	40	-	-	-	-
DFSRDA-AGAGV-103	Agri-AGV Mechatronics	04	-	2	3 Hrs	80	20	100	40	-	-	-	-
DFSRDA-AGAGV-104	Agri-AGV Computing	04	-	2	3 Hrs	80	20	100	40	-	-	-	-
DFSRDA-AGAGV-105	Agri-AGV Maintenance	04	-	2	3 Hrs	80	20	100	40	-	-	-	-
DFSRDA-AGAGV-107P	Mini Project	-	02	1	2 Hrs	-	-	-	-	25	25	50	25
DFSRDA-AGAGV-108P	Mechatronics Lab	-	02	1	2 Hrs	-	-	-	-	25	25	50	25
DFSRDA-AGAGV-109P	Image Processing Lab	-	02	1	2 Hrs	-	-	-	-	25	25	50	25
DFSRDA-AGAGV-110P	Sensors, Actuators and PLC Lab	-	02	1	2 Hrs	-	-	-	-	25	25	50	25

DFSRDA-AGAGV: SECOND SEMESTER (COURSE STRUCTURE)

Course and Examination Scheme of Certificate course (DFSRDA-AGAGV)

Subject Code	Subject Name	Teaching Scheme			Examination Scheme								
		Hours per Week		No. of Credits	Theory					Practical			
		Theory	Practical		Duration of Paper (Hrs.)	Max. Marks University Assessment	Max. Marks Internal Assessment	Total Marks	Min. Passing Marks	Max. Marks University Assessment	Max. Marks Internal Assessment	Total Marks	Min. Passing Marks
DFSRDA-AGAGV-201	Agri-AGV in CDKS	04	-	2	3 Hrs	80	20	100	40	-	-	-	-
DFSRDA-AGAGV-202	Agri-AGV in SSPN	04	-	2	3 Hrs	80	20	100	40	-	-	-	-
DFSRDA-AGAGV-203	Agri-AGV in SPM	04	-	2	3 Hrs	80	20	100	40	-	-	-	-
DFSRDA-AGAGV-204	Agri-AGV in FPA	04	-	2	3 Hrs	80	20	100	40	-	-	-	-
DFSRDA-AGAGV-205	Elective-I	04	-	2	3 Hrs	80	20	100	40	-	-	-	-
DFSRDA-AGAGV-206	Elective-II	-	02	2	3 Hrs	80	20	100	40	-	-	-	-
DFSRDA-AGAGV-207P	Major Project	-	04	2	4 Hrs	-	-	-	-	50	50	50	50
DFSRDA-AGAGV-108P	Agri-AGV Hardware Lab	-	02	1	2 Hrs	-	-	-	-	25	25	50	25
DFSRDA-AGAGV-109P	Agri-AGV Software Lab	-	02	1	2 Hrs	-	-	-	-	25	25	50	25
DFSRDA-AGAGV-110P	CAD/CAM/CAE Lab	-	02	1	2 Hrs	-	-	-	-	25	25	50	25


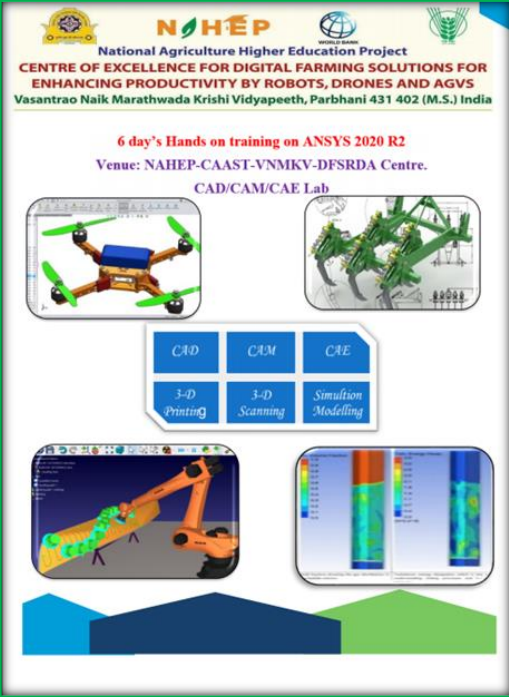
Agri-AGVs Division Team member's Hierarchy






Activities/Events Conducted:

1. International/National Trainings/Workshop Organized

AGV division organized 9 trainings for upscaling knowledge of students, researchers and faculty. Beneficiaries of these trainings were students, Faculties from all over globe. Participants understood different emerging technologies like 3D printer, CAD/CAE analysis tools used for designing of various farming equipment's.

Sr. No	Name of Training	Date	No. of Participants	Photo
1.	International Workshop on “Digital Farming Practices by, Agribots, AgriDrones & Agri AGV”	13-15 th March 2020	650	
2.	National online 2 weeks training on “BASIC PRACTICES OF ANSYS 2020-R1 FOR AGRICULTURAL RESEARCHERS “	11-29 May 2020	120	

3.	One day e-Training is organized on, “Aerial grasping Application for Agriculture Researchers- An Overview by UAV”	23/05/20 20	72	 <p>The poster features logos of NHEP, The World Bank, and other organizations. The text includes: "e-Training on 'Aerial grasping application for agriculture- An overview by UAV' May 23, 2020 (For UG, PG, Ph. D Students & Faculty)". It describes a project by the Centre of Excellence for Digital Farming Solutions for Enhancing Productivity by Robots, Drones and AGVs (DFSRDA) at Vasantao Naik Marathwada Krishi Vidyapeeth, Parbhani, Maharashtra. It mentions a resource person, Mr. V.S. RAJASHEKAR, and includes a small photo of him and an image of a drone.</p>
4	one week online training on “Present & Futuristic trends in Agriculture mechanization ”	18-23 rd June 2020	424	 <p>The poster features logos of NHEP, The World Bank, and other organizations. The text includes: "Centre of Excellence for Digital Farming Solutions for Enhancing Productivity by Robots, Drones and AGVs (DFSRDA) One Week Online International Training on Present and Futuristic Trends in Agricultural Mechanization 18 - 23 June 2020". It includes four images showing various agricultural machinery and drones in use.</p>
5.	One day online-training program on “Power of Digital manufacturing for new product development- 3D printing”	25 May 2020	323	 <p>The poster features logos of NHEP, The World Bank, and other organizations. The text includes: "Centre of Excellence for Digital Farming Solutions for Enhancing Productivity by Robots, Drones and AGVs (DFSRDA) Vasantao Naik Marathwada Krishi Vidyapeeth, Parbhani Online Training Programme on 'Power of Digital Manufacturing (3D printing) for New Product Development' 25th June, 2020 at 11.00 am". It includes several images showing 3D printed parts and manufacturing processes.</p>

6.	As a part of MoU joint activity done with IIT Kharagpur. Organized a two week online short term course on “Application of Digital Technologies in Agriculture”	13 -24 July 2020	52	 <p>Two Weeks Online Short-Term Course to NAHEP-CAAST-VNMKV Students on Application of Digital Technologies in Agriculture Under Centre of Excellence for Digital Farming Solutions for Enhancing Productivity by Robots, Drones and AGVs (DFSA) Project, NAHEP-CAAST, ICAR, New Delhi 13-24 July 2020</p> <p>About NAHEP-CAAST Project Centre for Advanced Agricultural Sciences and Technology (CAAST) under World Bank Sponsored National Agricultural Higher Education Project (NAHEP) of Indian Council of Agricultural Research (ICAR), New Delhi is paramount to develop and adopt the knowledge-intensive agriculture education to enhance the agricultural productivity. Agricultural Post-Graduates and Doctoral students are the target objectives to develop the quality human resource in digital technology with appropriately equipped by knowledge and their expertise in frontier areas of agricultural science and technology. The desired traits and skills could be instrumental for market-driven research and rapid adoption of advanced agricultural practices. Moreover, emphasis is being placed upon inclusiveness and equity aspects of the access to agricultural higher education. The project envisages the enhancement of quality and relevance of the agricultural higher education to the agricultural university students. The NAHEP centre is integrated by three interdisciplinary research divisions such as Agri-Robots, Agri-Drones and Agri-AGVs based on four portfolios:</p> <ol style="list-style-type: none"> 1. Climate-based Digital Knowledge Support Centre (CDKS) 2. Seed/Seedling Processing and Nursery Automation Centre (SSPN) 3. Smart Portable Machinery Centre (SPM) 4. Food Processing Automation Centre (FPA) <p>Project Partners 1. NAHEP-CAAST-IIT Kharagpur, Indian Institute of Technology Kharagpur, Kharagpur-721302, West Bengal, India (Knowledge Centre). Aim of the centre is to conduct the research in the area of Agri-Robots, Agri-Drones and Agri-AGVs and to train the PG, Ph.D. and Faculty members of NAHEP-CAAST-VNMKV. Principal Investigator: Prof. V. K. Tewari, Director-IIT Kharagpur and Professor, Agri-IIT Kharagpur Joint-Principal Investigator: Dr. R. Mahavaram, Assistant Professor, Agri-IIT Kharagpur Co-Principal Investigator: Prof. J.K. Bhattacharyya, Professor, EAECT, IIT Kharagpur Co-Principal Investigator: Dr. A.K. Nayak, Assistant Professor, AE, IIT Kharagpur Co-Principal Investigator: Prof. A.K. Deb, Associate Professor, IE, IIT Kharagpur Co-Principal Investigator: Prof. M. Bhattacharya, Professor, ICT, ABV IITM Gwalior</p> <p>2. NAHEP-CAAST-VNMKV, Vasantnagar Naik Marathwada Krishi Vidyalaya, Parbhani-431402, Maharashtra, India (Centre of Excellence). Aim of the centre is to establish the advanced academic and research facilities, to establish University and Industry Interface in the area of Agri-Robots, Agri-Drones and Agri-AGVs keeping IIT Kharagpur as one of the knowledge Partner. Principal Investigator: Dr. G.L. Shinde, Team Leader and Assistant Professor, FMPE, VNMKV, Parbhani Co-Principal Investigator: Dr. U.M. Khodke, Associate Dean and Principal, IDE, VNMKV, Parbhani</p> <p>About the Short-Term Course The two-weeks online short-term course on “Application of Digital Technologies in Agriculture” is organized under the project “Centre of Excellence for Digital Farming Solutions for Enhancing Productivity by Robots, Drones and AGVs” under National Agricultural Higher Education Project (NAHEP) sponsored by NAHEP-CAAST, ICAR New Delhi, headed by Prof. V. K. Tewari, Director-IIT Kharagpur and PI-NAHEP-CAAST-IIT Kharagpur. This short-term course aims to enlighten the participants in the areas of Sensors, Drones, Robots, Artificial Intelligence and Machine Learning, Machine Vision Techniques, Computer Aided Design and Advanced Digital Technologies application in Agriculture for enhancing the productivity with minimal effort and cost. PG/Ph.D. Students, Faculty, Scientists of Vasantnagar Marathwada Krishi Vidyalaya, Parbhani are eligible to register and are requested to take the advantage of the two weeks online short-term course from 13th July 2020 to 24th July 2020. Interested candidates can contact Dr. D. V. Patil, Assistant Professor, FMPE and Co-Team Member of NAHEP-CAAST-VNMKV, Parbhani to register their names e-mail: nahep-caast.vnmkv@icar.gov.in. Daily lectures as per the schedule are live telecasted through online platform with tutorials and online discussions by the renowned professors in the domain area from THICT Centre, IIT Kharagpur.</p>
7.	Joint activity of IIT Bombay with NAHEP CAAST VNMKV in which Three weeks online short term course to NAHEP CAAST students and faculties on “Application of digital technologies for smart agriculture”	10-28 August 2020	86	 <p>Three Weeks Online Short-Term Course to NAHEP-CAAST-VNMKV Students on Application of Digital Technologies for Smart Agriculture Under Centre of Excellence for Digital Farming Solutions for Enhancing Productivity by Robots, Drones and AGVs (DFSIDA) Project, NAHEP-CAAST, ICAR, New Delhi 10-28 August 2020</p> <p>About NAHEP-CAAST Project Centre for Advanced Agricultural Sciences and Technology (CAAST) under World Bank Sponsored National Agricultural Higher Education Project (NAHEP) of Indian Council of Agricultural Research (ICAR), New Delhi is paramount to develop and adopt the knowledge-intensive agriculture education to enhance the agricultural productivity. Agricultural Post-Graduates and Doctoral students are the target objectives to develop the quality human resource in digital technology with appropriately equipped by knowledge and their expertise in frontier areas of agricultural science and technology. The desired traits and skills could be instrumental for market-driven research and rapid adoption of advanced agricultural practices. Moreover, emphasis is being placed upon inclusiveness and equity aspects of the access to agricultural higher education. The project envisages the enhancement of quality and relevance of the agricultural higher education to the agricultural university students. The NAHEP centre is integrated by three interdisciplinary research divisions such as Agri-Robots, Agri-Drones and Agri-AGVs based on four portfolios:</p> <ol style="list-style-type: none"> 1. Climate-based Digital Knowledge Support Centre (CDKS) 2. Seed/Seedling Processing and Nursery Automation Centre (SSPN) 3. Smart Portable Machinery Centre (SPM) 4. Food Processing Automation Centre (FPA) <p>Project Knowledge Partner NAHEP-CAAST-IIT Bombay, Indian Institute of Technology Bombay, Powai, Mumbai 400 075, Maharashtra, India (Knowledge Centre). Aim of the centre is to conduct the research in the area of Agri-Robots, Agri-Drones and Agri-AGVs and to train the PG/Ph.D. and Faculty members of NAHEP-CAAST-VNMKV. Principal Investigator: Prof. Anil Sena, IIT Bombay Co-Principal Investigator: Prof. Rajat Anand, IIT Bombay</p> <p>2. NAHEP-CAAST-VNMKV, Vasantnagar Naik Marathwada Krishi Vidyalaya, Parbhani-431402, Maharashtra, India (Centre of Excellence). Aim of the centre is to establish the advanced academic and research facilities, to establish University and Industry Interface in the area of Agri-Robots, Agri-Drones and Agri-AGVs keeping IIT Bombay as one of the knowledge Partner. Principal Investigator: Dr. G.L. Shinde, Team Leader and Assistant Professor, FMPE, VNMKV, Parbhani Co-Principal Investigator: Dr. R.P. Kadane, Professor, ICARMSRI, IIT Bombay Co-Principal Investigator: Dr. Saroj N. Datta, Asst. Professor, CAET, VNMKV, Parbhani</p> <p>About the Short-Term Course In this time of crisis, well-needed and effective educational initiative is what is needed for the capacity building of every mind. The three-weeks online short-term course on “Application of Digital Technologies for Smart Agriculture” is organized under the project “Centre of Excellence for Digital Farming Solutions for Enhancing Productivity by Robots, Drones and AGVs” under National Agricultural Higher Education Project (NAHEP) sponsored by CAAST, ICAR New Delhi, headed by Assistant Prof. Anil Sena, IIT Bombay and PI-NAHEP-CAAST-IIT Bombay. This short-term course aims to enlighten the participants in the areas of Sensors, Drones, Robots, Artificial Intelligence and Machine Learning, Machine Vision Technology, and Advanced Digital Technology application in Agriculture and allied sectors for enhancing the productivity with minimal effort and cost. PG/Ph.D. Students, Faculty, Scientists of Vasantnagar Marathwada Krishi Vidyalaya, Parbhani are eligible to register and are requested to take the advantage of the three weeks online short-term course from 10th August 2020 to 28th August 2020. Interested candidates can contact Dr. S. N. Datta, Assistant Professor, Agri-Engineer and Co-PI (SPM) of NAHEP-CAAST-VNMKV, Parbhani to register their names e-mail: nahep-caast.vnmkv@icar.gov.in. Daily lectures as per the schedule are live telecasted through online platform with tutorials and online discussions by the renowned professors in the domain area from Centre for Technology Alternative to Rural Areas (CTARA) Centre, IIT Bombay. This training would definitely develop skills that will drive their employability, productivity and wellbeing in the domain of smart and secure the overall progress of India.</p>

8.	International Seminar (Online) on “Digital Technologies for smart agricultural: Futuristic plan”	10-13 August 2020	350	
9.	Hands on training on ANSYS software	31-12-2020 to 6-01-2021	40	

2. Laboratories' Development

I) Developed CAD/CAE Lab

CAD/CAE lab Computer-aided design & computer-aided engineering (CAD/CAE) lab is developed to design prototypes and manufacture, produce different agricultural machines. By using CAD/CAE students are able to design different 3 D model for drones, Robots, AGV and they can do its analysis, testing and simulation. ANSYS software tools are procured for CAD/CAE analysis.



II) Hydraulics & Pneumatics Lab

Hydraulics & Pneumatics lab is procured in AGV division for agricultural students to explore the fundamental principles of fluid mechanics through experimentation. Equipment will be useful to students for demonstration and analysis of key hydraulic phenomena using hands-on physical devices. Students are able to investigate engineering design principles for pipe networks, open channel systems, and ground water regimes. This lab installation is in progress.

III) 3D Scanner & Stratsys 3D Printer



In 3D printer and 3D scanner laboratory students will acquire knowledge and skills related to the design and fabrication of agricultural equipment. To prepare for careers in mechanized agriculture and technical systems, students must attain knowledge and skills related to agricultural equipment design and fabrication. This lab provides facility to agricultural researchers in such way that with set of machines and software for directly converting CAD designs to physical parts. 3D printer and scanners are provided in lab to create autonomous and accurate parts of AGV, farming tools.

IV. AGVs engineering workshop

The workshop allows our students and trainees to develop a wide range of skills with the use of tools during practical classes and project works. Equipment includes welding machine, drilling machine, grinding machine etc. Lab contains cut models for providing better understanding of engines, tractor systems and pumps. Equipment related to farm machinery includes tillage implements, intercultural implements, plant-protection equipment, harvesting equipment and threshing equipment. Equipment for soil and water conservation, irrigation, processing, renewable energy equipment is also available in the lab. AGV engineering workshop is developed for designing and development of different mechanical parts required for manufacturing of various agricultural equipment and AGV.



3. Research Activity

Research experience allows post graduate students to better understand published works, learn to balance collaborative and individual work, determine an area of interest and jump start their careers as researchers. Through exposure to research, many students discover their passion for research and continue on to doctoral studies and faculty positions. Two research projects were developed under AGV division.

i) Solar based Automatic Spraying Machine

Solar based Automatic Spraying Machine (AGV) was tested under AGV division. This is solar operated vehicle; it consists of sprayer, Cold fire, Camera, alarm system. This machine can move for spraying in 180 degree. It is operated by charged battery and solar photovoltaic power. It has sound buzzer to protect crop from wild animals and birds. It has vice and recording camera to store the data.



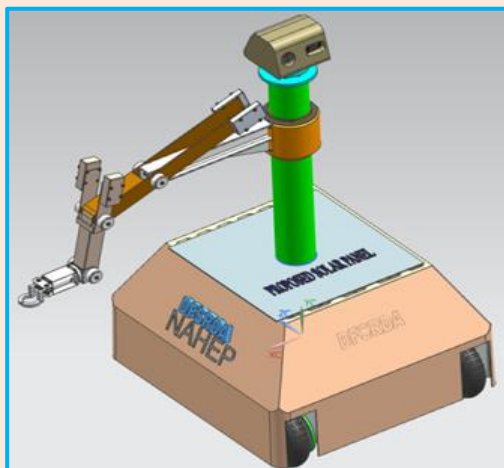
ii) Development of Cotton picker machine



Solar base semi-automatic machine was developed by Ph.D student under guidance of NAHEP staff. This machine can pick 50 kg cotton in day. It is very cost effective and easy to use for farmers.

iii) Multi operational automatic guided vehicle

NAHEP CAAST DFSRDA VNMKV team developing multi operational AGV. This vehicle will perform different farming operations like crop harvesting, Plant health monitoring, Pick and place operations etc. A prototype will designed which uses solar energy to perform the various task and it also favored the use of Lead Acid Battery pack which had the capability of functioning 3 farming processes in a single run. Practically our multipurpose agricultural equipment will be used for tilling, fertilizing, sowing, leveling and also used for weed removal purposes. All the parts will connect in such a way that in every stage of agriculture the equipment can be rearranged or easily assembled with fasteners to required length and specifications of field operation.



4. Revenue Generation cycle

i) Scissor Lift

Scissor lift is mounted on Bolero vehicle, its design and development was provided by NAHEP research team. Scissor Lift is developed for harvesting of fruits and Plants. It provides ease of use and save time, labour cost.



ii) Disinfection Box

For detection of COVID-19 virus UV disinfection box was developed by Sawaraj Engineering in collaboration with NAHEP. This box is available in different sizes. This box is useful for disinfecting Vegetables, Seed Bags, Wallets, mask, watch, Books etc.



iii) Proposed Food Technology Unit

In AGV division under FPA portfolio food technology unit is proposed for checking quality of different fruits, food items. Advance digital equipment's are provided in this lab for identification food quality, Color, Moisture etc.



5. MoU / MoA

NAHEP center done MoU with different institutes and industries with common goals related to research activities in the area of digital farming research and seek to develop collaborations and exchange between themselves in the areas of shared research interest and expertise. Both the organizations have agreed to work together to achieves set of objectives. The general purpose of this collaboration is to stimulate and provide research opportunity to the post-graduate, and PhD students, and also other senior researchers, in increasing the effectiveness in agricultural research in VNMKV students, jointly organize seminars, conferences, and academic workshops on topics of mutual interests, publish books, monographs, seminar and workshop volumes, etc., and disseminate knowledge. MoU and MoA are proposed for scholar exchanges, student exchanges, resource sharing, etc. depending on the needs of the person or entity initiating the agreement.

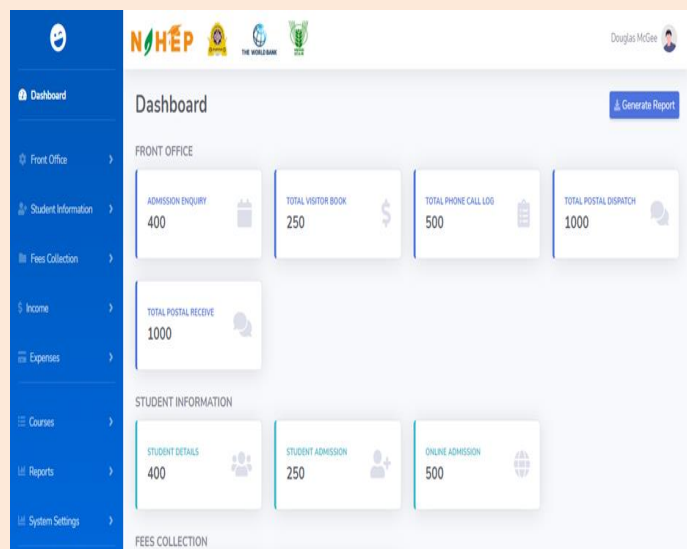
i) Swaraj Engineering

MoU is done with Swaraj Engineering for development of different digital products. Disinfection box was developed under this MOU.



ii) Saron Digitech

MoU is done with Saron Digitech for different Android application development. NAHEP and SARON team are developing different applications for crop health monitoring, disease identification, fertilizer and seed selection, Administrative purpose etc. These Apps will very helpful to farmers ,students for their research work and also for maintain administrative records, fees collections etc.



iii) Aaryaion Electric vehicle

NAHEP team and AEV PVT LTD, Pune made MoU for development of No paid multiple agricultural operation multi-wheel drive Electric vehicles. This vehicle is useful for intercultural farming operations, harvesting, Spraying etc.



6. Media Coverage

उत्पन्न वाढविण्यासाठी यांत्रिकीकरण महत्त्वाचे

आंतरराष्ट्रीय प्रशिक्षण : व्यंकट मायंदे यांचे प्रतिपादन

लोकमत न्यूज नेटवर्क

परभणी : कृषी क्षेत्रातील शेतकऱ्यांचे उत्पन्न दुप्पट करण्यासाठी कृषी यांत्रिकीकरण महत्त्वाचे असून, शेतकऱ्यांनी तंत्रज्ञानाचा वापर करून शेती करावी, असे आवाहन अकोला येथील डॉ.पंजाबराव देशमुख कृषी विद्यापीठाचे माजी कुलगुरू डॉ.व्यंकट मायंदे यांनी केले आहे.

भारतीय कृषी अनुसंधान परिषद अनुदानित राष्ट्रीय कृषी उच्च शिक्षण प्रकल्पाच्या बतरीने १८ ते २३ जून या काळात परभणीत व भविष्यातील कृषी यांत्रिकीकरण या विषयावर ऑनलाईन आंतरराष्ट्रीय प्रशिक्षण

सुरू आहे. या प्रशिक्षणाच्या उद्घाटन प्रसंगी कुलगुरू डॉ.अशोक ढवण तर प्रमुख पाहुणे म्हणून डॉ.मायंदे उपस्थित होते. अभियांत्रिकी संघटनेचे अध्यक्ष डॉ.इंद्रामणी मिश्रा, डॉ.प्रभातकुमार, डॉ.मनजीत सिंग, डॉ.धर्मराज गोखले, डॉ.मनजीत सिंग, डॉ.उदय खोडके, डॉ.गोपाळ शिंदे यांची प्रमुख उपस्थिती होती. यावेळी अल्पदौर्याचा समारोह करताना कुलगुरू डॉ.अशोक ढवण म्हणाले, कृषी शास्त्रज्ञांनी डिजिटल यांत्रिकीकरणावर भर देऊन यांत्रिकीकरणाचा प्रसार शेतकऱ्यांपर्यंत करावा. यांत्रिकीकरणामुळे उत्पादन

नास्त्यावेढी व्यती नसूद केले. पावेळी भारतीय कृषी यांत्रिकीकरण संघटनेचे अध्यक्ष डॉ.इंद्रामणी मिश्रा, डॉ.प्रभातकुमार, डॉ.मनजीत सिंग, डॉ.धर्मराज गोखले, डॉ.मनजीत सिंग, डॉ.उदय खोडके, डॉ.गोपाळ शिंदे यांनी मार्गदर्शन केले. त्याचप्रमाणे देश विदेशातील शास्त्रज्ञ या प्रशिक्षणात सहभागी झालेले होते. डॉ.विना भालेराव यांनी सूचसंचालन केले. प्रा.दत्तात्रय पाटील यांनी आभार मानले. यशस्वीतेसाठी डॉ.गोपाळ शिंदे, प्रा.संजय पवार, प्रा.दयानंद टेकाळे, प्रा.दत्तात्रय पाटील, डॉ.रमो बंगळे, डॉ.अविनाश काकडे, शिवानंद शिवनुते, शैलेश शिंदे, गोपाळ रंगे अदींनी प्रयत्न केले.

यंत्रसामुग्री शेतकऱ्यांपर्यंत पोचवा

कुलगुरू डॉ. अशोक ढवण : आंतरराष्ट्रीय प्रशिक्षणाचा आज समारोप

परभणी, जून २२ (आंतरराष्ट्रीय) : डिजिटल यांत्रिकीकरण उत्पन्न वाढविण्यासाठी कृषी यांत्रिकीकरण महत्त्वाचे असून, शेतकऱ्यांनी तंत्रज्ञानाचा वापर करून शेती करावी, असे आवाहन अकोला येथील डॉ.पंजाबराव देशमुख कृषी विद्यापीठाचे माजी कुलगुरू डॉ.व्यंकट मायंदे यांनी केले आहे. भारतीय कृषी अनुसंधान परिषद अनुदानित राष्ट्रीय कृषी उच्च शिक्षण प्रकल्पाच्या बतरीने १८ ते २३ जून या काळात परभणीत व भविष्यातील कृषी यांत्रिकीकरण या विषयावर ऑनलाईन आंतरराष्ट्रीय प्रशिक्षण सुरू आहे. या प्रशिक्षणाच्या उद्घाटन प्रसंगी कुलगुरू डॉ.अशोक ढवण तर प्रमुख पाहुणे म्हणून डॉ.मायंदे उपस्थित होते. अभियांत्रिकी संघटनेचे अध्यक्ष डॉ.इंद्रामणी मिश्रा, डॉ.प्रभातकुमार, डॉ.मनजीत सिंग, डॉ.धर्मराज गोखले, डॉ.मनजीत सिंग, डॉ.उदय खोडके, डॉ.गोपाळ शिंदे यांची प्रमुख उपस्थिती होती. यावेळी अल्पदौर्याचा समारोह करताना कुलगुरू डॉ.अशोक ढवण म्हणाले, कृषी शास्त्रज्ञांनी डिजिटल यांत्रिकीकरणावर भर देऊन यांत्रिकीकरणाचा प्रसार शेतकऱ्यांपर्यंत करावा. यांत्रिकीकरणामुळे उत्पादन नास्त्यावेढी व्यती नसूद केले. पावेळी भारतीय कृषी यांत्रिकीकरण संघटनेचे अध्यक्ष डॉ.इंद्रामणी मिश्रा, डॉ.प्रभातकुमार, डॉ.मनजीत सिंग, डॉ.धर्मराज गोखले, डॉ.मनजीत सिंग, डॉ.उदय खोडके, डॉ.गोपाळ शिंदे यांनी मार्गदर्शन केले. त्याचप्रमाणे देश विदेशातील शास्त्रज्ञ या प्रशिक्षणात सहभागी झालेले होते. डॉ.विना भालेराव यांनी सूचसंचालन केले. प्रा.दत्तात्रय पाटील यांनी आभार मानले. यशस्वीतेसाठी डॉ.गोपाळ शिंदे, प्रा.संजय पवार, प्रा.दयानंद टेकाळे, प्रा.दत्तात्रय पाटील, डॉ.रमो बंगळे, डॉ.अविनाश काकडे, शिवानंद शिवनुते, शैलेश शिंदे, गोपाळ रंगे अदींनी प्रयत्न केले.

भविष्यातील कृषी यांत्रिकीकरण विषयावर आंतरराष्ट्रीय प्रशिक्षण

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येथील वसंतराव नाईक मराठवाडा कृषी विद्यापीठातगत असलेल्या भारतीय कृषी अनुसंधान परिषद, नवी दिल्ली व अनुदानित राष्ट्रीय कृषी उच्च शिक्षण प्रकल्प (नाहेप) कृषी संयुक्त विद्यमाने 'वर्तमान व भविष्यातील कृषी यांत्रिकीकरण' या विषयावर १८ ते २३ जून या काळात परभणीत एक आठवड्याचे आंतरराष्ट्रीय ऑनलाईन प्रशिक्षणाचे आयोजन करण्यात आले होते.

प्रशिक्षणाचे उद्घाटन १८ जून रोजी परभणीत कार्यक्रमामुळे अभ्यासस्थानी कुलगुरू डॉ. अशोक ढवण हात प्रमुख पाहुणे

म्हणून अकोला येथील डॉ.पंजाबराव देशमुख कृषी विद्यापीठाचे माजी कुलगुरू डॉ. व्यंकट मायंदे होते. सररील कार्यक्रमात भारतीय कृषी अभियांत्रिकी संघटनेचे अध्यक्ष डॉ. इंद्रामणी मिश्रा, नाहेप प्रकल्पाचे राष्ट्रीय समन्वयक डॉ.प्रभात कुमार, शिक्षण संचालक डॉ. धर्मराज गोखले, डॉ. मनोजित सिंग, कृषी अभियांत्रिकी व तंत्रज्ञान महाविद्यालयाचे प्राचार्य डॉ. उदय खोडके, नाहेप प्रकल्प प्रमुख डॉ. गोपाळ शिंदे आदींचा प्रमुख सहभाग होता.

कुलगुरू डॉ.अशोक ढवण म्हणाले की, डिजिटल यांत्रिकीकरणाने तरुण शास्त्रज्ञांनी पारंगत होऊन त्यांचा जास्तोत जास्त

शेतकऱ्यांपर्यंत प्रसार करावा असा सल्ला दिला. तर शेतकऱ्यांचे उत्पन्न दुप्पट करण्याकरिता कृषी यांत्रिकीकरणाचे महत्त्व या विषयावर डॉ.व्यंकट मायंदे यांनी मार्गदर्शन केले. डॉ. इंद्रामणी मिश्रा यांनी कृषी यांत्रिकीकरण वापर मार्गदर्शन केले तर नाहेप प्रकल्पाचे राष्ट्रीय समन्वयक डॉ. प्रभात कुमार यांनी वाढत्या लोकसंख्येचा अन्न सुरक्षिततेसाठी कृषी यांत्रिकीकरणाची गरज असल्याचे सांगितले. डॉ. मनोजित सिंग यांनी कोरंगना महामारीच्या काळात कृषी यांत्रिकीकरणाच्या वापराने भर देण्याचे विशद केले. शिक्षण संचालक डॉ. धर्मराज गोखले, प्राचार्य डॉ. उदय खोडके, प्रकल्पाचे प्रमुख

डॉ.गोपाळ शिंदे, उपप्रकल्प संचालक प्रा. संजय पवार आदींनी आपले मनोगत व्यक्त केले. या प्रशिक्षणात देशातील २२ राज्यमधुन ४२३ तर इतर १० देशातील १७ परिणामांच्या सहभाग नोंदविला आहे. कार्यक्रमाचे सूत्रसंचालन डॉ. विना भालेराव यांनी केले तर आभार प्रा. दत्तात्रय पाटील यांनी मानले. कार्यक्रम यशस्वीतेसाठी प्रकल्प अन्वयक डॉ.गोपाळ शिंदे प्रा.संजय पवार, आयोजक प्रा. दयानंद टेकाळे, प्रा.दत्तात्रय पाटील, डॉ. रमो बंगळे, डॉ. अविनाश काकडे, डॉ. शिवानंद शिवनुते, डॉ. शैलेश शिंदे, डॉ. गोपाळ रंगे आदींनी पुढाकार घेतला.