



National Agriculture Higher Education Project  
 Centre of Excellence : Digital Farming Solutions for Enhancing Productivity by  
 Robots, Drones and AGV's (DFSRDA)

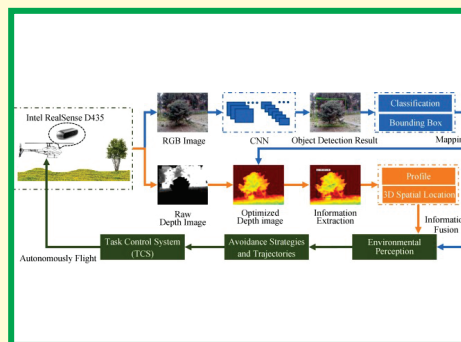
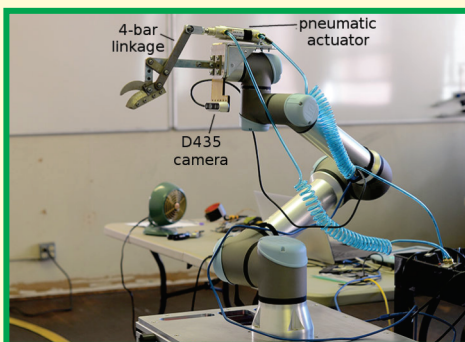
Vaswantrao Naik Marathwada Krishi Vidyapeeth, Parbhani (M.S.) INDIA

## Hands on Two Week Training Programme

on

“Python programming Application using smart camera in Agriculture”

01<sup>st</sup> to 09<sup>th</sup> September 2021



Vaswantrao Naik Marathwada Krishi Vidyapeeth, Parbhani (MS) INDIA

## About University

The Marathwada Krishi Vidyapeeth (Presently renamed as Vasantrya Naik Marathwada Krishi Vidyapeeth) established in 1972 on Land Grant pattern at Parbhani to fulfill the regional aspirations of fields, undertake research and facilitate technology transfer in marathwada region of Maharashtra.

Vasantrya Naik Marathwada Krishi Vidyapeeth (VNMKV) Parbhani, is one of the prestigious agricultural universities in India. Since its inception, it has gained recognition as an innovative organization in the term of education and research in agriculture. It takes care of research and facilitates agriculture technology transfer in marathwada region of Maharashtra .

## About Project

The Centre of excellence for Digital Farming solutions for Enhancing Productivity by Robots, Drones and AGV's (DFSRDA) Under Center for Advanced Agricultural Science and Technology (CAAST) is being implemented in Vasantrya Naik Marathwada Krishi Vidyapeeth, Parbhani, Maharashtra under world bank Sponsored National Agricultural Higher Education Project (NAHEP) of Indian Council of Agricultural Research (ICAR), New Delhi, Government of India, Since 2019. The main objective of this center is to train PG/PhD students and faculties about advances in science and technology. The project is proposed on 50:50 cost sharing basis between the World Bank and the Government of India, implemented at VNMKV, Parbhani. Overall, the project aims to establish an advanced basic engineering hardware and software setup such as Mechatronics, CAD/CAM/CAE, 3-D Printers and Instrumentation Laboratories for Agribots, Agri-drones and Agri-AGVs., so that a holistic model can be developed to raise the standard of current agricultural education system that provides more jobs and is entrepreneurship oriented and on par with the global agriculture education standards.

As a part of this project, Centre of excellence for Digital Farming solutions for Enhancing Productivity by Robots, Drones and AGV's (DFSRDA), VNMKV, Parbhani is organizing Hands on Two Week Training Programme on "Python programming Application using smart camera in Agriculture"

## Training Background

Python is Easy to use, open source and versatile programming language especially popular among those learning programming for the first time. It is portable and cross platform It is concise and easy to read, and can be used for a variety of industry needs including web development, data analytics, core software development and wide range of scientific and mathematical applications. Python also has numerous libraries for data manipulation and analysis as well as a very active development community that continually updates and creates new packages. It has been adopted by a wide variety of industries and applications including data science, machine learning, data analytics, predictive analytics, business intelligence and web analytics. Python is also being used for developing the IoT devices. AI is assisting IoT in enabling real-time data analytics to help make informed decisions to farmers. Precision agriculture or smart Agriculture relies on emerging technologies such as AI, ML and data analytics to revolutionize farming practices.

Python programming is useful for smart camera vision system. Pictures from the smart cameras will be used to regularly monitor, recognize, and count plant leaves, flowers, plant height, and to calculate predicted greenhouse yields. Optimizing greenhouse operations by effectively using the appropriate inputs of nutrients, water, and other elements at the most appropriate plant stage growth makes greenhouse farming more economically and environmentally sustainable. .In view of this two Week hands on training Programme on "**Python programming Application using smart camera in Agriculture** is schedule "from 1st to 9th September 2021 under NAHEPCAAS, VNMKV, Parbhani.

## Objectives

1. To help the participants to familiarize with Python Programming language and data analysis.
2. To train the participants in accessing data from various domains and by using smart cameras
3. To develop confidence as independent Python Programmer and data analyst
4. To introduce participant various applications of smart camera in agriculture with python programming and mini project

## Target Audience

All M.Sc., M.Tech., Ph.D. Research scholar and Faculty of VNMKV, University are eligible to apply.

## About Selection

- 1) The Whatsapp Group of the selected candidates will be formed at least one day before the start of the online training and the communications regarding the online training will be posted in the group.
- 2) Alternatively Candidates can keep accessing the CAAST-VNMKV website (<https://nahep.vnmkv.org.in>) regarding the selection, preferable on the day before the start of the training.
- 3) **Certificates will be issued only those participants who will complete all online session and assignments.**

## Training Outcomes

### Methodology for conduct of Training

Pre and Post Evaluation: Pre and Post certificate course evaluation will be carried out to evaluate the impact of the certificate training

**Evaluation :** There will be evaluation of the candidates at the end of each week, and a final evaluation towards the end of the course. The evaluation will be in the form of MCQs, descriptive questions, and power point presentations, as the case may be.

## Registration

**Duration of Online Training :**  
27<sup>th</sup> August to 01<sup>st</sup> Sept., 2021

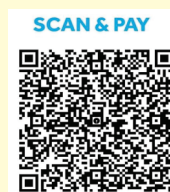
**Registration Fee (Non Refundable):**

**Online Training Fee:**  
Rs. 100/- for All Students,  
Rs. 500/- for All Faculty,

### Account Details :

**Account Name :** Comptroller, Vasantrya Naik Marathwada Krishi Vidyapeeth  
**Account Number :** 38639565001  
**Bank Branch :** State Bank of India,  
**Branch: MKV, Parbhani (MS) India.**  
**IFSC Code :** SBIN0020317  
**MICR Code :** 431002203

or use QR code provided here.



### Important Dates:

PG, PhD Students, Faculties, Scientists and Staff of Vasantrya Naik Krishi Vidyapeeth, Parbhani are eligible to register and are requested to take advantage of the hands on Two week Training Programme on **“Python programming Application using smart camera in Agriculture”** from the 27<sup>th</sup> August to 01<sup>st</sup> Sept., 2021 online mode by following all guidelines of COVID-19.

[https://docs.google.com/forms/d/e/1FAIpQLSduJ1\\_IgF8fz-6btAuN7KIw4ufW\\_e5sFaFFdoRzbu45odzFPw/viewform](https://docs.google.com/forms/d/e/1FAIpQLSduJ1_IgF8fz-6btAuN7KIw4ufW_e5sFaFFdoRzbu45odzFPw/viewform)

Last date of registration : Sept. 01, 2021  
upto 10 AM

Training Language: English

## Hands on Training Schedule

**Syllabus for 2 weeks “Python programming Application using smart camera in Agriculture is schedule “from 1st to 9th September 2021**

Sr. No.	Name of chapter and content	Date
1	<b>Fundamentals of Python</b>	<b>01.09.2021</b>
2	<b>Working with Data &amp; Input and</b>	<b>02.09.2021</b>
3	<b>Making Decisions &amp; Finding and Fixing</b>	<b>03.09.2021</b>
4	<b>Lists and Loops</b>	<b>04.09.2021</b>
5	<b>Numeric and Date functions &amp; Working with Strings, Functions</b>	<b>06.09.2021</b>
6	<b>Selection of cameras, tools according to project and its data</b>	<b>07.09.2021</b>
7	<b>Small Project programming related to agriculture (Measuring of height, Length, No .of leaves , No .of fruits on plant)</b>	<b>09.09.2021</b>

\*\*Note every day included two sessions each of 2 hour

# Hands on Two Week Training Programme

on

“Python programming Application using smart camera in Agriculture”

01<sup>st</sup> to 09<sup>th</sup> September, 2021 Time : 11.00 Hrs

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## Patrons



**Dr. A. S. Dhawan**  
Vice-Chancellor  
VNMKV, Parbhani



**Dr. R. C. Agrawal**  
National Director  
NAHEP, ICAR, New Delhi

## Chief Convenors



**Dr. D. N. Gokhale**  
DI & Dean F/A  
VNMKV, Parbhani



**Dr. Prabhat Kumar**  
National Co-ordinator  
NAHEP, ICAR, New Delhi

## Convenor



**Dr. G.U. Shinde**  
Principal Investigator  
NAHEP-CAAST-DFSRDA  
VNMKV, Parbhani

## Organizing Secretary

**Er. Ravikumar Kalloji**  
RA (AGV),  
NAHEP-CAAST-DFSRDA  
VNMKV, Parbhani

## Co-Organizing Secretary

**Er. Apurva Deshmukh**  
Junior Engineer (Elect)  
NAHEP-CAAST-DFSRDA  
VNMKV, Parbhani  
M. 8888527515

**Er. Sanjivani Kanwate**  
Junior Engineer (CSE)  
NAHEP-CAAST-DFSRDA  
VNMKV, Parbhani  
M. 9764683123

**Er. Vishvapratap Jadhav**  
Junior Engineer (Etc)  
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M. 8329789564