



# POORNIMA

INSTITUTE OF ENGINEERING & TECHNOLOGY

## Department of Electronics & Communication Engineering

Date: 09/04/2018

# Notice

This is to inform that Department of Electronics & Communication Engineering in collaboration with Technest Pvt. Ltd. is organizing a two day (2) workshop on “IOT & Raspberry Pi” on 12<sup>th</sup>-13<sup>th</sup> April, 2018 for students of ECE, EE & CSE branch.

The workshop will cover up the theory session; hand on practice & various project demonstrations. Interested students may register through Google form. There will be limited seats so register hurriedly, seats will be provided on first come, first serve basis.

Register using : <https://goo.gl/forms/rpU1yb6CkQ6oFfzk1>

- Certificate will be provided to students.
- Students may carry their laptop with them.
- Registration Fee : 300 /- • Date : 12-13 April, 2018
- Timing : 8:00 am – 2:30 pm
- Venue : Online Lab, PIET

Payment must be done before on or before 2:30 pm till Wednesday, 11<sup>th</sup> April 2018 to **Mr. Dinesh Bhatia**, Assistant Professor, and Department of ECE.

Student Coordinator

Mayank Agrawal (9460281830)

Abhishek Shrimal (7219918948)

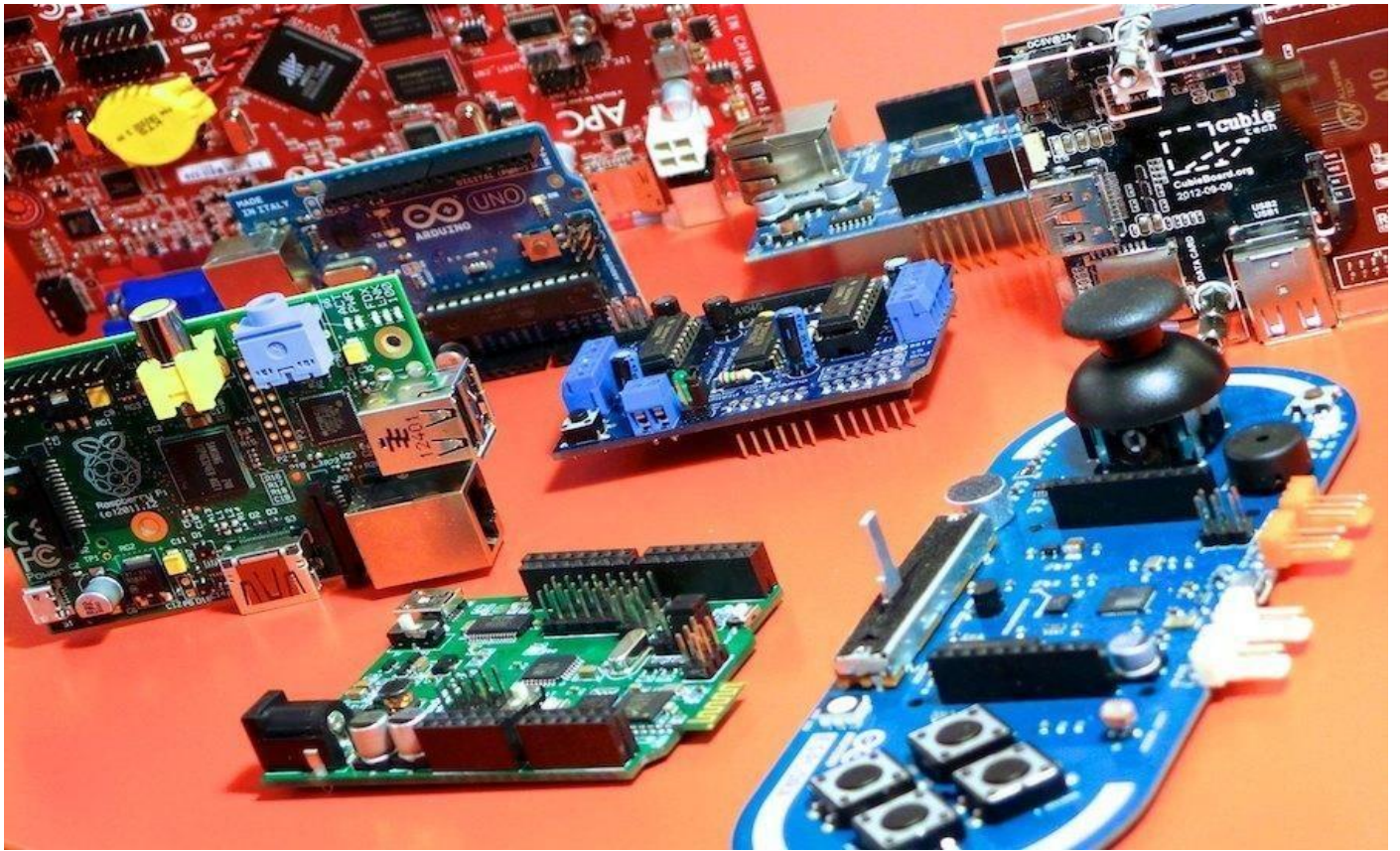
Pranjali Bohra

Faculty Coordinator

Mr. Dinesh Bhatia (Asst. Professor)

Mr. Rahul Gupta (Asst. Professor)

Mr. Manish Singhal  
Hod, Dept. of ECE



# Workshop Proposal

# Raspberry Pi

## Internet of Things & Vision system



**Address:**

55, Balaji Plot , Rajapeth , Amravati  
Maharashtra—444605

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## DoxPro Robotics Private Limited

Gandhinagar | Amravati | Jaipur

### Overview

“According to IDC, worldwide spending on the Internet of Things (IoT) is forecast to reach \$772.5B in 2018. “

“Cisco estimates that the IoT market in manufacturing will be worth around 4 Trillion dollars in 2022. “

2017 has been an year of large investment in field of “Internet of Things” and other embedded system used in IoT. Students gaining knowledge in the technology that is trending and expanding with hundreds of billions will surely be suitable to land a job.

### Benefits from this Workshop

1. All the trainers worked as Project leader or Developer in IoT and Vision System sectors.
2. Students will learn the **Latest Technologies** in use while developing the projects themselves.
3. Workshop is completely practical and **Hands-on** with Device.
4. They will learn real world devices used actually by the Corporates and Industries.
5. All the **Certificate** will be directly post to HOD / Principle .

### Module for Workshop

## IoT & Vision system with Raspberry Pi

Raspberry Pi a credit card size SBC(Single Board Computer) has grown in popularity over the years, replacing many microcontroller with its powerful processing power and that too without compromising in its ease of coding and development. **Camera interfacing** along with **Wifi/Ethernet connectivity** and **40 GPIO pins** enable us to interface various electronic sensors and devices with Pi's fast mobile processor and at the same time logging and receiving data to and from internet. Camera with Raspberry Pi has allowed us to perform various **image processing** task with ease. Plus the GPIO pins enables us to interface various embedded electronic devices.

Project 1 : Social media integration of Camera, sensors & devices( **Twitter** , Telegram ).

Project 2 : **OCR** (Text recognition and reading).

Project 3 : **Data logger** system on server (or on email or excel datasheet).

Project 4 : Home **Automation**

Project 5 : **Automated Surveillance system**

Project 6 : **Object detection and identification**

**Duration : 3 Days (18 hours) , Fees : 500 INR/Student only**

**\* Kindly provide confirmation email for the same before January 22,2018**

### Major Topics

1. Introduction to various SBC, and its history.
2. Why Raspberry Pi
3. Various acceptable programming languages for Raspberry Pi
4. Introduction to **Raspbian OS and linux system**
5. Configuring Pi.
6. Why use python
7. Basics of python,
8. Variables, operators, control and flow statements
9. Function and classes, modules and libraries
10. Basic linux command and cron job
11. Use of **GPIO port** for input/output
12. **Camera** interfacing

13. How to **make Raspberry Pi speak**.
14. Writing and Reading **Database** (server side database, excel sheets)
15. How **IoT** with Raspberry Pi
16. Remote Access of Pi.
17. Image Processing basics for Pi
18. Popular languages ,**framework**, devices used in vision system
19. Basic and in-depth learning of various algorithms in **image processing**
20. **Machine learning algorithms** for image processing
21. **Object detection** and model training for recognition of objects
22. Open source libraries for Vision System/Image Processing
23. Various Cloud API for Vision System/Image Processing
24. **Doubt Clearance Session**.

## **Requirement**

1. Computer lab
2. Hand Free Micro-Phone
3. Overhead Project