Report of Addon course: Internet of Things and Home Automation

Date: 22nd November 2016,

Addon Course: Internet of Things and Home Automation.

Resource Person: 1) Mr. Prasann Mayekar, Asst. Prof and Head. BCA.

2) Mr. Dattaprasad Naik, Trainer, Inventrom.

Objective

To introduce to the students the basics of Internet of Things(IoT) and Home Automation and the electronic components that are required in a home automation application

Activity:

Total 8 students enrolled for the course out of which 7 students completed . The course was conducted at the college Robotics Laboratory.

Topics covered were:

- Introduction and the hardware devices
- HTML, Javascript and CSS
- IoT Controlled Apps
- Data Based triggers
- Social media

Outcome: The students were able to interface various sensors using the BOLT platform(micro-controller) and were able to control it. Students learned to collect data and pass it to the Online platforms.

Head, Dept. of Computer Applications(BCA)

Dnyanprassarak Mandal's
COLLEGE AND RESEARCH CENTRE,
ASSAGAO - GOA

Department of Computer Applications (BCA)
Addon Course: Internet of Things and Home Automation

Course Duration: 30 hours.
Start Date: 18/08/2016.

Objective: To introduce to the students the basics of Internet of Things(IoT) and Home Automation and the electronic components that are required in a home automation application.

Learning Outcome: After successful completion the students will be able to build a home automation application and be able to control it remotely using an web interface.

Course Content:

Module 1: Getting Started

Module 1.1: Getting started with lot

- Introduction to Internet of Things
- Key Concepts
- Bolt hardware description and interfacing components
- Setting up the hardware

Module 1.2: Output Devices

- Interfacing an output device (LED and Buzzer)
- PWM (Pulse width modulation)
  Project 1: Controlling the intensity of an LED with software

Module 1.3: Input Devices

- Interfacing Digital Sensor (Proximity sensor)
- Reading Sensor input via polling
  Project 2: Intruder alarm
- Interfacing Analog sensor (LDR)
  Project 3: Automated lighting system.

Module 2: Learning HTML

Module 2.1 Fundamentals of HTML

- HTML tags
- Document Structure
- Designing your first webpage
- Body Tags
- Hyperlinks
- Images
- Events

- Using Templates
- Buttons
- Scroll Bars

Module 2.2: JavaScript

- Script Tag and Attributes
- Variables
- Reference of IDs
- Functions
- Set time out function
  Project 5: Can you see me WebApp

Module 2.3: CSS

- Inline CSS
- Document level CSS
- Selectors in CSS
- Using CSS in JavaScript

Module 3: The IoT control Apps

Module 3 1: Building your first IoT App

- Integrate HTML pages to our project
- Control over the desktop and android application
- Customize the project via HTML
  Project 6: Building a panic button. Evacuate your premises with a click of a button on a smartphone app in case of an emergency like fire, earthquake, terror attack
  Project 7: Building an app based light dimmer

Module 3.2: Building an Internet Controlled Robot (Needs you to purchase additional hardware)

- Understanding Motor Drivers (L293D)
- Interfacing Motors
- Assembling a Robot
  Project 8: Building an internet-controlled robot

Module 3.3: Home Automation (Needs you to purchase additional hardware)

- Understanding Replays
- Interfacing relays with Bolt
  Project 9: Controlling your home lighting over a smartphone app.
  Project 10: Controlling Home Appliances over App.

Module 4: Working with the mobile application

Module 4.1: Data collection

- Analysis and display of sensor data
- Viewing sensor data on a smartphone app (iPhone and Android)
  Project 11: Building an environment monitoring smartphone app. Monitor the change in light intensity and movement of people in a room.

Module 4.2: Thing Speak: Presenting data over web

- Creating a channel
- Integrating Channel API with Bolt Platform

- Sending sensor data to ThingSpeak
- Creating chart on the data
  Project 12: Developing a web-based monitoring system

Module 4.3: Data based triggers

- Trigger actions based on sensor data
  Project 13: Sending messages to slack when data triggers

Module 4.4: Social Media of Things

- Automatic Tweets to alert
  Project 14: Build a door that tweets when opened.
- IFTTT: if this then that
- Writing an IFTTT recipe
  Project 15: Chair that updates the Facebook status if someone is sitting on it.

Dnyanprassrak Mandal's
College and Research Centre, Assagao-Bardez, Goa
Department of Computer Applications
Attendance Sheet
Internet of Things and Home Automation

Sr No.	Name	Roll Number	Class	18-08-2016 10:00 am to 4:00 pm	01-09-2016 10:00 am to 4:00 pm	23-09-2016 10:00 am to 4:00 pm	21-11-2016 10:00 am to 4:00 pm	22-11-2016 10:00 am to 4:00 pm
1	Shubham Tulaskar	32	SYBCA	P	P	P	P	P
2	Gaurish Naik	21	SYBCA	P	P	P	P	P
3	Preston Rodrigues	27	SYBCA	P	P	P	P	P
4	Suraj Madkaikar	41	FYBCA	P	P	P	P	P
5	Shazib Hassan	20	FYBCA	P	P	P	P	P
6	Hanumant Godekar	13	SYBCA	P	P	P	P	P
7	Shane Colaco	5	SYBCA	P	P	P	P	P
8	Mansi Sawant	29	SYBCA	P	P	P	P	P

H.O.D

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College and Research Centre

Assagao, Bardez, Goa, 403507

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Certificate

This is to certify that Mr./Ms. **Shubham Tulaskar** completed a Add-on course of 30 hours duration on **'Internet of Things and Home Automation'** organized by the Department of Computer Application of Dnyanprassarak Mandal's College and Research Centre from 18th August 2016 to 22nd November 2016.

Mr. Prasann Mayekar
Head, Dept. of Computer Applications

Dr. D.B. Arolkar
Professor & Principal

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This is to certify that Mr./Ms. **Mansi Sawant** completed a Add-on course of 30 hours duration on **'Internet of Things and Home Automation'** organized by the Department of Computer Application of Dnyanprassarak Mandal's College and Research Centre from 18th August 2016 to 22nd November 2016.

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This is to certify that Mr./Ms. **Shane Colaco** completed a Add-on course of 30 hours duration on **'Internet of Things and Home Automation'** organized by the Department of Computer Application of Dnyanprassarak Mandal's College and Research Centre from 18th August 2016 to 22nd November 2016.

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This is to certify that Mr./Ms. **Hanumant Godekar** completed a Add-on course of 30 hours duration on **'Internet of Things and Home Automation'** organized by the Department of Computer Application of Dnyanprassarak Mandal's College and Research Centre from 18th August 2016 to 22nd November 2016.

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Head, Dept. of Computer Applications

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This is to certify that Mr./Ms. **Gaurish Naik** completed a Add-on course of 30 hours duration on **'Internet of Things and Home Automation'** organized by the Department of Computer Application of Dnyanprassarak Mandal's College and Research Centre from 18th August 2016 to 22nd November 2016.

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This is to certify that Mr./Ms. **Preston Rodrigues** completed a Add-on course of 30 hours duration on **'Internet of Things and Home Automation'** organized by the Department of Computer Application of Dnyanprassarak Mandal's College and Research Centre from 18th August 2016 to 22nd November 2016.

Mr. Prasann Mayekar
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This is to certify that Mr./Ms. **Suraj Madkaikar** completed a Add-on course of 30 hours duration on **'Internet of Things and Home Automation'** organized by the Department of Computer Application of Dnyanprassarak Mandal's College and Research Centre from 18th August 2016 to 22nd November 2016.

Mr. Prasann Mayekar
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This is to certify that Mr./Ms. **Shazib Hassan** completed a Add-on course of 30 hours duration on **'Internet of Things and Home Automation'** organized by the Department of Computer Application of Dnyanprassarak Mandal's College and Research Centre from 18th August 2016 to 22nd November 2016.

Mr. Prasann Mayekar
Head, Dept. of Computer Applications

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