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| **Task title** | Task 03 : To connect sensors and actuators to e-Yantra IoT Platform. | |
| **Duration** | 03 Week | |
| **Created** | Omkar Manjrekar, Ajit Harpude | **Last updated by:** Omkar Manjrekar, Ajit Harpude |
| **Date** | **Created:** 16th April, 2019 | **Last updated on:** 1st May, 2019 |

# Task 03 : To connect sensors and actuators to e-Yantra IoT Platform.

**Outline:**
In this task, you will connect a sensor and an actuator to e-Yantra IoT Platform. The sensor will be used to monitor the environmental parameters (temperature, humidity and soil moisture) of the farm you have completed in the previous task. The actuator will help you take an action to set desired temperature, humidity or soil moisture.

**Components required:** e-Yantra IoT Kit

**Sub-tasks:**
**Setting up RPi with new OS image**
Refer to document titled **Setup for Task 2** **(click here)** for preparing the RPi with new OS.

**Getting started with Mongoose OS for ESP8266 and ESP32**
Refer to document titled **Mongoose OS Setup** **(click here)** for getting started and learning more about using Mongoose OS on ESP32/8266.

**Using e-Yantra IoT Platform**
Refer to the document titled **using-iot-platform.pdf**

**Connecting a device to e-Yantra IoT Platform**
1. Using ESP8266/ESP32 **(click here)**
2. Using Python (on Rpi, computer, etc.) **(click here)**

**Extra features**
1. Writing crons **(click here)**
2. Getting email notifications **(click here)**

**Additional resources**
1. https://github.com/e-Yantra-OpenSource/3day-workshop
2. https://github.com/manjrekarom/iot-workshop
3. https://github.com/sanamshakya/interfacing-AWS-IoT
4. https://mongoose-os.com/docs/mongoose-os/quickstart/setup.md
5. https://docs.aws.amazon.com/iot/latest/developerguide/device-shadow-mqtt.html
6. https://drive.google.com/open?id=1SM_wn2SdDWbJC9cU31yUC2Mnuwz50c4B

## Deliverables:

1. Code for the following task with proper comments, proper folder structure and style. Submit this as a **ZIP file**. Don't include build folders in case of mongoose OS. We only need the source files.
2. A video needs to be submitted with following contents:
    - Devices (Minimum 1 - valve/s, 1 - Sensor/s, 1 - Micro-controller) on the e-Yantra IoT Platform.
    - Once added, operate the valve from the dashboard
    - Show plots of graphs of sensor data on the dashboard