

e-Yantra Robotics Competition (eYRC-2018)

Hardware and Software Testing

Introduction:

In this exercise we will check the hardware and install all the necessary software on the Raspberry Pi 3 (RPi 3) and get ready with the setup.

Objective:

- Install Raspberry Pi image on the memory card provided
- Configure RPi3
- Make circuit connections for RPi, Arduino Nano, DC Motors, Standard & Micro Servo Motors, L298N, Line Sensor and Buzzer
- Verify software configuration and hardware connections by running a code in RPi

Structure of the directories:

Please find the folders named **“01_Making_RPi_Ready”** and **“02_Making_Circuit_Ready”** within the folder containing this “Read_Me” file. This directory also contains The files within these have been named for the individual tasks as follows:

1. 01_Making_RPi_Ready:

- 1.1. We will start with installation of Raspberry Pi image. For this purpose, you will find files named as: *“01_RPi-OS-image-burning-SSH-Linux-instruction.pdf”* and *“01_RPi-OS-image-burning-SSH-Windows-instruction.pdf”* depending on which type of OS you use in your computer.
- 1.2. As next step we will configure the Raspberry Pi, using the instruction in *“02_Configuring_Raspberry_Pi3.pdf”*.

2. 02_Making_Circuit_Ready:

- 2.1. After making the Rpi3 ready, we will make our circuit ready for testing the components as per *“Making_Circuit_Ready.pdf”*.

3. Task Description:

1. Once your setup is ready with necessary hardware connections and software configuration, download the “*Test.ino*” and “*Test.py*” files from this [link](#).
2. Load the “*Test.ino*” file to Arduino Nano as per instructions in “Loading_Code_Arduino”. Then copy the python file “*Test.py*” to the RPi3 and run the file.
3. As per this code, as long as you hold the Line Sensors on a white surface, DC motors and Standard & Micro Servo motors will start rotating, Buzzer will turn ON and PiCam will provide video feed.
4. You have to shoot a video and show the components working when Line Sensor is kept on white surface.
5. Please use webcam/mobile phone camera etc. to capture this video.
6. The submission must be a single video.
7. Sample submission video is provided on this [link](#).

4. Submission Requirements:

You are required to submit a single video capturing the process of testing successfully the Hardware and Software. This video is to be a maximum of 3 minutes in length and uploaded as **unlisted** on YouTube. The instructions of unlisted Video and its upload are provided on the “Shipment” page on the portal.

All the Best!!!