Hardware Testing

Please find the following folders within **Hardware Testing folder** that contains this **Read Me** file.

- *Resources* Folder
  - Please find the following file(s) in this folder:

    Folder: AVRDude

    File:01_Installation Guide for AtmelStudio6.pdf

    File: 02_Setting project AtmelStudio6.pdf

    File: 03_Understand ATmega2560 Microcontroller.pdf

    File: 04_Flashing HEX file.pdf

    File: 05_Programming in Linux OS.pdf

    File: 06_Testing Code in Arduino Nano.pdf

    Folder: Datasheets contains datasheets for both microcontrollers.
  - Follow the instructions in each file to install the software(s), create project and flash hex file onto respective microcontroller board
- *Test Files* Folder
  - Please find the following file(s) in this folder:

    File: Color_Sensor_Interfacing.hex - Using this file you can test color sensor values on LCD

    File: DC_Servo_Buzz_IR_Sharp.hex - Using this file you can test DC Motor, Servo Motor, Buzzer, IR Sensor and Sharp Sensor as shown in the Hardware Testing video.

    File: White_Line_Sensor.hex - Using this file you can test white line sensor values on LCD

    File: Nano_Limit.hex - Using this file you can test limit switch, REG LED, toggle switch in Arduino Nano (ATmega328p)
  - Flash the hex file onto micro-controller for the respective components

- *Testing Instructions* Folder
  - Please find the following file(s) in this folder:

    File: Input_Modules.pdf

    File: Output_Modules.pdf

    File:Arduino_Nano_Test.pdf
  - Follow the instructions given in these files for component interfacing.
- *Required Figures* Folder

  This folder contains fritzing image files and necessary pin connection for the hardware testing material.

Before you start building a Robot or a Lift Mechanism, it is required to test the hardware components available in the kit.

We suggest you to follow the following steps:

1. Watch the video on "*Component Unboxing*" which will help you know the names and quantity of the component provided to you.
2. Watch the videos of "Nutty Squirrel: Hardware Testing Part 1" and "Nutty Squirrel: Hardware Testing Part 2" which demonstrates the working of the necessary components.
3. Now, go through *Testing Instructions* folder which contains the necessary documents for testing components and test the components listed in Input_Modules.pdf, Output_Modules.pdf files and Arduino_Nano_Test.pdf.
4. Create a video while you test the components; you may refer to our hardware testing video and upload it on the portal. Refer to 'Submission Instructions for Hardware Testing' given below.
5. Implement Task 2 problem statement given in Task 2 folder.

Note: Refer to the instructions in the Shipment section on the portal for video privacy settings.

Resources Link: http://elsi.e-yantra.org/resources

Submission Instructions for Hardware Testing:

Instructions for Creating Video

- The resolution of the video should be good enough. You have to use atleast 5 Megapixel or higher camera to shoot the video.
- The video should be in one of the two following formats: **'.avi'** or **'.mp4'**.
- The video will consist of only hardware testing of the components as shown in the Nutty Squirrel Hardware Testing video.

Here are a few tips for shooting good quality video:

- Camera should be kept stable while recording.
- Keep the background, any lighting, etc. constant during the video shooting.
- There should be no interference in terms of background noise or movement while shooting the video.

Instruction for Uploading video on YouTube:

- Upload video using the title **eYRC-NS#<TeamID>_H/W_Testing**
  - For example: If your team ID is 16 then, save it as eYRC-NS#16_H/W_Testing
  - While uploading the video on YouTube select the privacy setting option as **Unlisted.** Refer to the instructions on the portal for submitting video given in Shipment section.

Note: You can use Jumper wires and breadboard for testing purpose.

Submission Instructions for Task 2:

- If you have printed the Flex sheet, take the picture as instructed in Flex Printing Instruction file and submit in Task 2 section on the portal.

- After completion of Task 2, make zip file as instructed in Task 2 Problem Statement file and submit this zip on the portal in the same Task 2 section.