Centre For Innovation
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Electronics Club Freshie Session 2022-2023

Tasks for session 1

Hope you all enjoyed the session! Here are some problems you can solve to get a better understanding of Arduino and various sensors.

Submission Instructions:

Note: Make a Team of 1-3 and your team will be mentored by one of our coordinators. Try to be as creative as you can. The top 3 teams will be given a shoutout on our instagram page

If you have any personal projects that you would like to share, please do so too. We would like to see them all! We even encourage you to share them on the common WhatsApp Group too!

Once you register your team in the gform, a whatsapp group will be created with the mentor. any doubts or queries can be clarified with the mentor.

Perks of finishing the tasks:

- Top 3 teams will be given a discount in the hands on session which will conducted in the month of January
- All the submissions with creative answers will have an edge over the others in the recruitment for mini projects and for projects next sem.
- Most importantly you get used to tinkercad and start learning from your mistakes as there will be mentors for you to rectify your mistakes.

Resources:

To register your team, fill the form below,
https://forms.gle/cJjmDZLhuGRnZj5U6

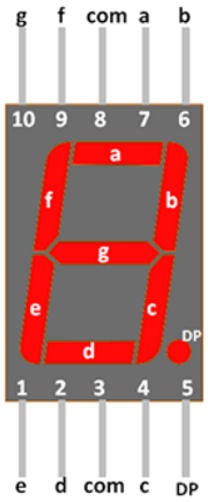
To learn how to make your tinker public follow this youtube tutorial!
https://www.youtube.com/watch?v=LiRCd59iJtw

PROBLEM-1:

Task (1A):

You come to know that the counter/clock in your house is damaged. To fix this make a Counter using a 7 segment display, that counts from 9 to 0 in steps of one every second and loop it.

A 7 segment display is an electronic display which displays every single digit decimal number.



Glow the required segments for each number at the same time to display the required number.

Task (1B):

To get a Realistic look to the counter use a buzzer to the previous circuit to make a beep sound every second the counter changes the number.

Task (1C):

Create a Pendulum using a servo motor that oscillates below the counter we made in task (2b). Try to make it as creative as you can!

Problem-2:

Task (2A):

You see that there is no gas or fire sensor in your house. So you decide to get your hands dirty by making your own sensor circuit. Create a circuit that detects gas (simply use a gas sensor) which then triggers a DC motor to put off the gas(assume DC motor to be fan).

Task (2B):

Now, you want to evacuate the house within 10 seconds of the detection of the gas. So you use a counter we made in Task 1 to count from 9 to 0. Try to make it more creative, so that not only you get more score but also you get practised with the components.

Problem-3 (Bonus):

Create a Problem Statement for an IoT(Internet of Things) based project which has an impact on the environment. Make a clear pipeline of the project which makes us understand your idea. Be as creative as you can.

Judging Criteria:

- The judging will be done based on the working of the Tinkercad circuit.
- Proper explanation of the code(explain the code and comment it out)
- There will be bonus points for creative improvement.
- For task 3, judging will be based on :
  (1)**utility**
  (2)**creativity**
  (3)**proper pipeline**

Useful resources:

- For learning more about the electronic components/sensors we use
  https://www.youtube.com/channel/UCzmI9bXoEM0itbcE96CB03w
  https://www.youtube.com/@paulmcwhorter
- For more interesting arduino and related projects
  https://www.hackster.io/
  https://hackaday.com/
  https://www.instructables.com/

All the best!!
Feel free to ping any of the whatsapp group admins for doubts.