Electromania

Points: 30
Event Type: Team Event
Team Structure:

- Only Y18 are allowed to participate. Every pool can send 10 teams at most.
- A team can consist of 3-4 people. All the members of a team should belong to the same pool.

Problem Statement:
The aim is to design a card swipe and read system. The objective is to design a binary encoded card and to read it and display its "Binary Identification Number" on LED Display System.

Tasks:

- You have to design a mechanism and circuitry to read the binary encoded card using only IR receivers and transmitters as reading sensors.
- Display the binary number captured on a LED Display.
- You should update the number displayed once a new card is swiped in the machine.

Constraints:

- Card should be made using cardboard according to the design and constraints that are provided in the resources link (binary number should contain at least 8 bits).
- You can use a maximum of two IR sets only.
- Use of any programmable ICs or on-board computers is not allowed.
- You can only use ICs from a list of ICs provided to you.

Bonus:

- Use the binary encoded card as a password to a security system. If the entered card has the same "Binary Identification Number" as a fixed or variable number stored in the Circuit, an LED is lit.
- Extra points will be given for card readers that can read more than 8 bits.
- Any other innovations of your choice.
- You can use extra IR sets for bonus (other than the two used in primary circuit).

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Judging Criteria:

- You will be given marks according to the working and accuracy of your circuit.
- Bonus will be awarded only after your primary circuit is working.
- Circuit with clean bread-boarding will be the winner in case of a tie.

Resources: https://drive.google.com/open?id=1Rpamv7lN8NeztQBgIKRYX2pEEQAwj4KT

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