A PROPOSAL TO MAKE SOMETHING COOL
Project Name: Automatic Toll Plaza

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Q1. What cool thing are you proposing to make (please explain in detail)?

Ans:- This project introduces a simplified procedure for passengers to pay tolls at toll booths by automating the process. All these activities are facilitated through the use of a motion sensor, ultrasonic sensor, and keypad, thus eliminating the need for manual operation of the barrier.

In this project, I am making a replica found in toll plaza centers that is called a stopping system, The idea for this project was inspired by the actual system, in actual tolls they stop the vehicles using a stopper that is completely automated and it is activated when any vehicle passes in front the ultrasonic sensor. In our case, we are using an HC-SR04 sensor to detect a vehicle(obstacle), and later to lift the barrier we are using a micro servo, which is the mechanism involved in this project,

The motion sensor is responsible for detecting traffic approaching from different directions. This ensures that vehicles approaching from a straight direction can stop safely, thereby preventing any mishaps.

The keypad serves users with monthly subscriptions, allowing them to pass through the traffic smoothly and without hassle. By entering the correct password, verified by the

system, the servo motor opens the barrier, enabling free movement for authorized users.

Q2. What part(s) does it use from the course kit?

Ans:

- Arduino Mega or Mega 2560
- Motion Sensor, Ultrasonic Sensor, Keypad
- Servo Motor
- Three LEDs (one with the motion sensor, two LEDs used with the opening of the barrier when a vehicle passes through the ultrasonic sensor, same with the keypad if the password is correct the green LED will turn on, and the servo motor opens the gate for the vehicle) or maybe used the LCD.
- Jumper wires, male-female wires
- Breadboard
- 330-ohm resistor

Q3. What extra part(s) will you require, if any?

Ans: No extra parts outside the Arduino kit will be required.

Q4. What part(s) will you 3D print?

Ans: No, at this moment, I'm not integrating any 3D components into my project Instead, I'm using LEDs to vividly show how the gate opens and closes.

REFERENCES

1. Arduino Get Started. (n.d.). Arduino-keypad-servo motor, from https://arduinogetstarted.com/tutorials/arduino-keypad-servo-motor
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3. Arduino Get Started. (n.d.). Arduino-motion sensor- led, from https://arduinogetstarted.com/tutorials/arduino-motion-sensor-led