**Project Proposals for CSE461(3) group 2**

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**\*\*\* Proposal 1: Home Automation device**

**Components:**

1. Arduino
2. DHT11 Digital Relative Humidity and Temperature Sensor
3. Active Buzzer 5V
4. MQ-2 Flammable Gas & Smoke Sensor
5. Ultrasonic Sonar Sensor HC-SR04
6. Servo Motor MG996R 180 Degree Rotation
7. 20mm 2.4Mhz Ultrasonic Mist Maker Fogger
8. Light Detection Photosensitive LDR Sensor
9. LED
10. Wires
11. Breadboard

**Feature 1:**

* The **air moisture sensor** measures the temperature
* if the temperature is above a certain threshold, the **mist maker** will emit cold mist from cold water autonomously.
* Or displays the humidity and temperature of the room in a display panel.
* (we want to execute one of these output options - unsure right now)

**Feature 2:**

* The **gas/smoke detector** will detect if there is smoke
* trigger a **buzzer if it detects smoke/gas**

**Feature 3:**

* **An Ultrasonic sensor** will be set in a cardboard-made house door and it’ll detect if a person is standing in front of it.
* Then the **servo motor** attached to the door will rotate to open the door.

**Feature 4:**

* **Light Detection Photosensitive LDR Sensor** will detect the intensity of light
* At nighttime, when the intensity is low, an **LED** near the door will be triggered to increase brightness in the door area.

Additional feature (if there is time):

* The temperature sensor detects high-intensity temperatures like fires
* Terminates all operations of Arduino signifying that all electrical appliances are turned off.

**\*Proposal 2: Smart bin system**

**Components:**

1. Arduino
2. Ultrasonic Sonar Sensor HC-SR04
3. Servo Motor MG996R 180 Degree Rotation
4. MQ-135 Gas Sensor
5. E18-D80NK Adjustable Infrared Proximity Sensor
6. LED
7. Wires
8. Breadboard

**Feature 1:**

* The **ultrasonic sensor** detects the movement in front of the dustbin
* Then the **servo motor** attached to the lid will lift the lid

**Feature 2:**

* **IR Proximity Sensor** will detect the fill level of the dustbin
* Then it will turn on the **LED** to indicate

**Feature 3:**

* **Gas Sensor** will detect the odor of the environment
* Then spray a mist to neutralize the odor

**Proposal 3: Autonomous gardening bot**

**Components:**

1. Arduino
2. Breadboard
3. Jumper wires
4. Soil Moisture Sensor Module
5. Ultrasonic Sonar Sensor HC-SR04
6. Active Buzzer 5V
7. DC 6V Micro Pump Motor
8. Light Detection Photosensitive LDR Sensor
9. Servo Motor MG996R 180 Degree Rotation

**Feature 1: automatic water dispenser**

* soil moisture sensor detects the water contents of the soil moisture and the DC 6v Micro Pump Motor will be turned on according to the threshold

**Feature 2: intruder Detection and Prevention**

* the ultrasonic sensor will detect the motion of any intruders like animals or people and the buzzer will start to buzz.

**Feature 3: Automatic shade deploy**

* The LDR will detect the intensity of the sun and if it is too bright then the servo motor will turn to put the shade over the plants