**BACKGROUND AND OBJECTIVE**

- The goal of this project is to create a system that can take care of high levels of toxic gas before it becomes life threatening to the user.
- Every year, 3,275 people die from smoke inhalation and another 500 die from carbon monoxide poisoning.
- Project works with IoT systems to send gas concentrations levels and alerts to homeowners of hazardous gasses in their homes.
- Homeowners can monitor their gas levels on the touchscreen of the sensor subsystem or on their mobile devices.
- The COSMIC gas detector will be able to detect toxic gases at low concentrations and be able to turn on ventilation systems before the concentrations become life-threatening.

**SYSTEM DIAGRAM**

**RESULTS**

- The sensor subsystem has 4 sensors for reading temperature, humidity, smoke, Carbon Monoxide, Natural Gas, and Ammonia.
- Upon detection of toxic gases, the sensor subsystem successfully sends a text message to the user’s phone, and toggles the appliance connected to the relay.
- The app allows users to view current and previous sensor data, and adjust the thresholds at which the user is notified and actuators toggled.

**SUMMARY**

- Overall the Cosmic System was a success.
- The Cosmic System successfully reads gas levels, activates actuators, alerts the user, and stores the data in the cloud.
- As a team, we learned hard skills such as PCB design, app design, and wireless connectivity.
- We went through the entire engineering design process, from requirements to component design and integration, into a fully working system.
- In the future, higher quality components can be used.

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