

Sydney Anderson

*Engineering Personal Protective Equipment to Detect Dangerous Levels of Carbon Monoxide*

The purpose of this project was to engineer an affordable device that would detect harmful levels of Carbon Monoxide and output an audio alarm to the user. This device could be used in the propane industry to protect service technicians from walking into a potentially deadly situation.

After locating the desired electrochemical sensor and collecting the parts required to complete the project, I used basic electrical circuitry to connect each component. The sensor was created to detect dangerous levels Carbon Monoxide in the working environment; from 50-400 parts of Carbon Monoxide per 1 million parts of air. The lights on the top of device indicate various things; the green light indicates power, the first red light is the warm-up light, and the second red light is the alarming light. The sound emission originates from a piezoelectric buzzer.

The next step in the engineering process was to test the constructed sensor. In order to do this, the sensor was placed, after the warm-up sequence had commenced, at the end of an apparatus through which Carbon Monoxide was flowing. In order to produce Carbon Monoxide, propane was burned inefficiently; giving off carbon and oxygen that combine to form Carbon Monoxide. If constructed properly, the device would emit an alarming sound to alert that levels of Carbon Monoxide exceeding 50 ppm were in the air. The constructed device did indeed alarm, therefore indicating that the test had been a success.