IDEATION REPORT

Gas Leakage Monitoring and Alerting System for Industries

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Abstract:

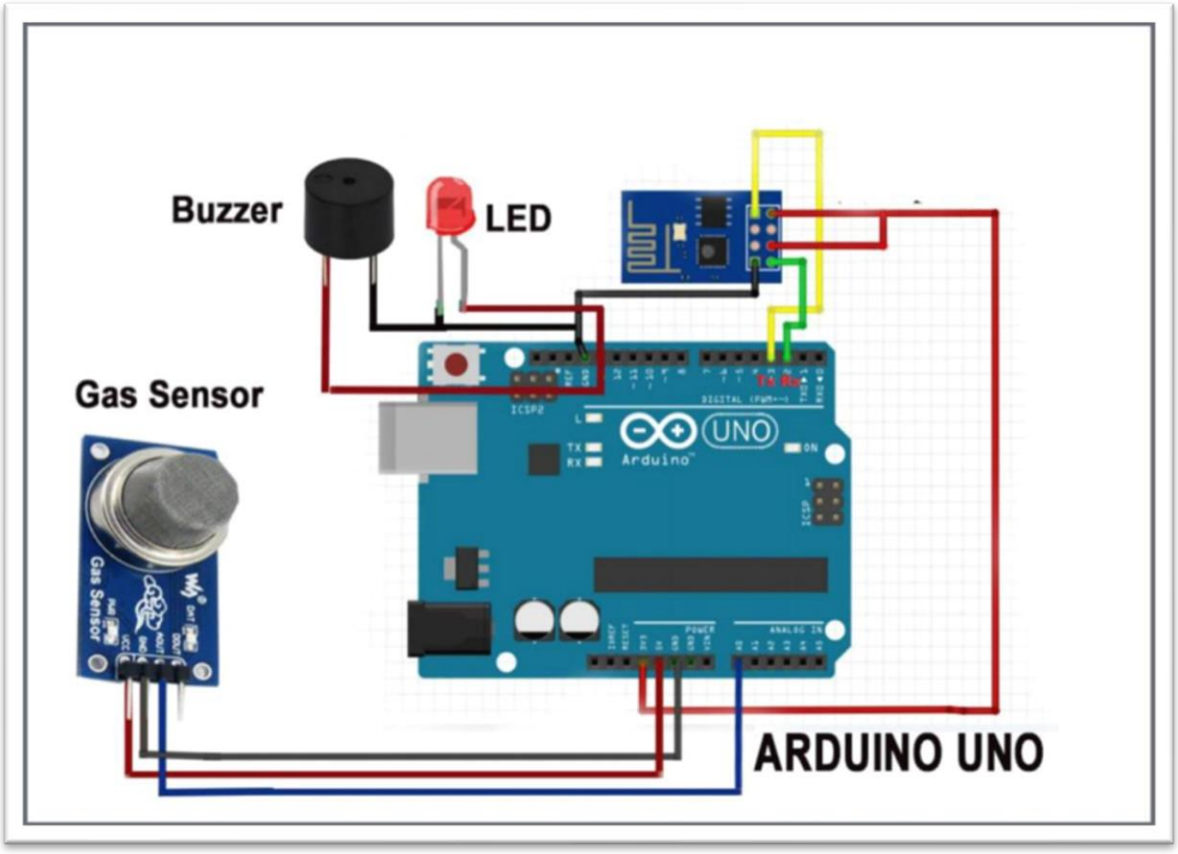
The Internet of Things aims to simplify life by automating all of the little tasks that we encounter. As much as IoT aids in task automation, its advantages can also be extended to improve current safety standards. IoT has not been immune to the fundamental concern of any project, safety. Gas leaks can be fatal and dangerous, whether they occur in open or closed spaces. Despite their high level of precision, conventional gas leak detection systems overlook a few important aspects of warning the public of a leak. As a result, we created a Gas Leakage Detector for society using IoT technology, which has the ability to perform data analytics on sensor readings and Smart Alerting techniques that involve text messaging the relevant authority. Our primary goal is to propose a system for gas leaks in which each apartment has gas leak detector equipment. This will identify any dangerous gases in the air and notify all members of society through alarm and notification.

Introduction:

The Internet of Things aims to simplify life by automating all of the little tasks that we encounter. As much as IoT aids in task automation, its advantages can also be extended to improve current safety standards. Safety has always been a top consideration when designing a home, a building, an industry, or a city. It can be extremely dangerous for certain gases to be present in the atmosphere at higher concentrations. These gases may be toxic after exceeding the specified concentration limits, flammable under certain temperature and humidity conditions, or even contribute to local air pollution issues like smog and poor visibility, which can lead to serious accidents and have a negative impact on people's health. The majority of societies have fire safety measures. But it can be used even after a fire has started.

We developed a system using sensors that can detect gases like LPG, CO2, CO, and CH4 in order to have control over such situations. This system will be able to identify gas leaks and alert users via audible alarms as well. This system can alert the user if there are excessive amounts of harmful gases present in the environment. System can send a message to society administrators informing them of the situation before an accident occurs.

Gas detector sensors, an Arduino board, an ESP8266, and a cloud server make up the system. All flat member users can be registered on our system by a single society authority person. The administrator of the society can add information about each flat's users, including their username, phone number, and flat sensor information. Each sensor's threshold value can be set by society admin. Each flat can be equipped with system hardware. The value per time can be sensed by sensors. Values can be sent from the system to a cloud server. The sensor values' existence at the threshold value can be checked by the server. The server can instruct the hardware to buzz the alarm if the sensor value can exceed the limit. Additionally, the server notifies the user.



The goal of creating this prototype was to revolutionize environmental safety by eliminating any major or minor hazards brought on by the release of toxic and harmful gases into the environment. We created a Gas Leakage Detector for society using IOT technology, and it has the ability to perform data analytics on sensors and Smart Alerting techniques that send text messages to the relevant authorities. Using gas sensors, this system will be able to identify any gases present in the surrounding area. This will shield us from the main harmful issue.