SMART DETECTOR REFUEL PETROL STATION

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*Abstract*— Even though, at retail gasoline outlets where static electricity-related are extremely rare, but the potential for them to happen appears to be the highest during dry or cool and cold climate conditions. Accidents can occur in unusual circumstances, where these static related incidents have resulted in a brief flash fire arise at the fill point. To minimize potential fueling hazards to consumer, the electronic device is introducing function to disallow the driver to refuel petrol when the vehicle engine is still in ignition. There are two sensors to detect the car ignition at car park refuel area which are the smoke detector and radio frequency sensor. Consumer need to fulfill two condition to refuel gasoline. The first condition is the smoke detector sensor is in low level carbon monoxide then typical carbon monoxide produced in daily basis. The second condition is consumer need to transmit radiofrequency using car key of vehicle to the gas station to approve that the car ignition is off. If neither condition is meet and the car ignition is off, consumer can override to refuel gas by pushing button override.

Keywords—car ignition, smoke detector, radio frequency sensor, button override

# Introduction

This Smart detector refuel petrol is to prevent potential fueling hazard. To increased consumer refueling safety, few guidelines will be added to prevent accidents to occur. In this modern era, most cars use remote keyless systems which come as standard nowadays[1]. Key fob transmitter and receiver inside the vehicle is subsist to work. The frequency of keyless remotes consist of 315MHz for North America-made cars and 433.92 MHz for European , Japanese and Asian cars[2]. car keys need to take out from the car to transmit signal to smart detector refuel station as the condition to prove that the car ignition is off. We all agree that vehicles produce carbon monoxide[3]. Though, automobile emission is reducing proportional to the technology every years, It still emit a lot when vehicles ignition is on than when the ignition is off. The smoke detector will identify and observe the air condition when the car ignition is on or off. If two conditions were approved by the smart detector refuel petrol station that the car ignition is off, the pump lock is disengaged for consumer to use. While, if else either conditions were not meet, pump lock can be overridden by pushing the button with lcd alert the consumer that the car ignition is on. In case, the consumer vehicles keys does not have key fob transmitter or engine is already off but the smoke detector analyze that the car emission is too low for the sensor to identify car ignition.

# objectives

The main objective of this project is:

* To minimize potential fueling hazards to consumer.
* To detect the car fob by using radio frequency receptor.
* To recognize ignition of vehicles by smoke detector.

# Methodology

## Flowchart

A close up of a logo

Description automatically generated

## Hardware design

Hardware of the physical components that have been merged together to build and form a Smart Detector Refuel Petrol Station are listed below.

- 100 Ohm Resistor

-220 Ohm Resistor

0Gas Sensor Breakout Board

-10K Ohm Resistor

-BreadBoard

-Jumper Wires Pack

-Male Headers Pack

-Arduino uno

433 MHz receiver(Any type of 433 Mhz receiver should work, but for this tutorial I used a 4 pin variant)

A breadboard

Some jumper wires

A 433 MHz transmitter(I used a 4 channel 433 MHz transmitter Remote)

# Result and discussion

# Conclusion

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