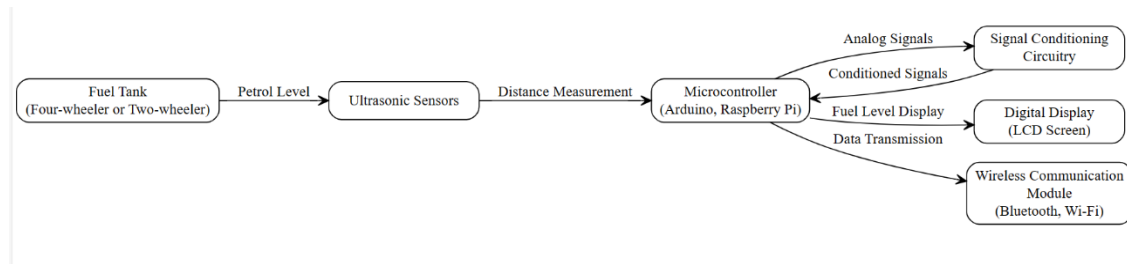


SMART PETROL TANK MEASUREMENT

ABSTRACT

The goal of the project is to create a tool that can precisely gauge how much gasoline is in both two- and four-wheel drive vehicles. The instrument measures the distance between the ultrasonic sensor and the gasoline's surface using sensors that are installed inside the fuel tank. Then, a microcontroller and signal conditioning circuitry are used to convert this measurement of distance into volume units (liters). The ultrasonic sensors' principle of operation is that they emit sound waves, which reflect off the surface of the gasoline and return to the sensor. The exact measurement of the petrol level is obtained by measuring the time it takes for these waves to return. In order to precisely determine the distance, the microcontroller processes this data and applies calibration factors based on the dimensions of the tank. Users can see the current gasoline level in liters on an integrated digital display, which gives them access to real-time information. The gadget can also include wireless communication modules, like Bluetooth or Wi-Fi, to send fuel level information to a dashboard or mobile app. The gadget provides a dependable and practical means of keeping an eye on car fuel levels, guaranteeing effective fuel management, and averting unplanned fuel shortages. The project tackles a problem that many car owners encounter: precisely gauging the amount of gasoline in order to guarantee that there is enough for their trips. The device measures the amount of gasoline precisely and in real time by utilizing sophisticated microcontroller technology and ultrasonic sensors integrated into the fuel tank. With great accuracy, the ultrasonic sensors measure the distance to the surface by sending out sound waves that pass through gasoline. The microcontroller then processes this distance data, converting it into a readable fuel level in liters by taking into account the tank's dimensions and calibration values. Users can simply monitor their petrol levels and schedule refueling stops in accordance with their needs thanks to a digital display that offers clear and fast feedback. Convenience is further increased by the option for wireless data transmission, which enables users to access fuel level information remotely using centralized vehicle monitoring systems or smartphones. All things considered, this project presents a creative and useful approach to effective fuel management, improving the driving experience and encouraging responsible vehicle operation.

BLOCK DIAGRAM:



1. ultrasonic sensors emit sound waves that travel through the petrol inside the fuel tank.
2. These waves bounce back off the petrol's surface and return to the sensors.
3. The sensors measure the time taken for the waves to return, which is proportional to the distance between the sensor and the petrol level.
4. The microcontroller processes this distance data and applies calibration factors based on the tank's dimensions to calculate the petrol quantity in liters.
5. The calculated fuel level is then displayed on the digital display, providing users with real-time information.
6. Optionally, the wireless communication module allows for remote access to fuel level data, enhancing convenience and accessibility.