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Carbo Securing on Road Vehicle from Accidents and Alert System Using GSM and GPS

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ABSTRACT- Climate change in mountains remains challenging due to gaps in observations and models In this project, we have presented a landslide warning system because the occurrence of landslide is a great loss to human life in every mountain climbing.

So we are developing a wireless information sharing kit using a 433 MHz solar transmitter and receiver. The transmitter project kit will be placed on the mountain side, it will update the road condition, climate change to alert the driver through high frequency communication. We use this technique to warn people about landslides using RF. On the other side, the vehicle unit receiver set will have a mems-sensor to detect road deviation based on x, y, z axis. If it detects an abnormal axis and the vehicle is predicted to fall or tilt, it will be alerted from the location by GPS and GSM. So to alert people before a landslide using GSM to send a message. Data is collected from input weather parameters such as soil sensors, temperature, humidity and air pressure sensor at a specific location and time as fast as possible and then transmitted to the vehicle for transmission and transmitted by radio. -frequency, information will be sent to RX (receive). The output of the soil sensors is displayed on the LCD as a percentage. The SMS system will alert people via GSM and alert an ambulance. This project briefly deals with Earth observation and areas of vital importance to people and society. The system monitors the changing geotechnical condition using various geotechnical sensors such as soil sensors, temperature sensors, air pressure sensors and moisture sensors. This project also touches on aspects of data transmission via the Global System for Mobile Communications (GSM) to a remote data center

I.INTRODUCTION

This device helps the owner to track and find out the vehicle activity and its past vehicle movements, the latest ones like GPS are very useful these days. Over the last decade, the use of automobiles has improved linearly, increasing the risk to human life. This is because emergency services are inadequate. In this project, we use a warning system that helps to strengthen the emergency system of the emergency system. There is also a switch to stop sending the message in the rare case of no injury, which can save valuable time for the emergency medical team. When an accident occurs, an alert message is automatically sent to the rescue team and the police station. The message was sent by GSM module and location is detected using the GPS module. The accident can be accurately detected using the Micro Electromechanical System (MEMS) sensor and the vibration sensor. The rollover angle of the car can also be known by a message via the MEMS sensor. This application provides the optimal solution for the poor emergency facilities provided in road accidents in the most feasible way. This application aims to provide a suitable alternative to weak emergency devices

II. OBJECTIVE

- The aim of this project is to immediately rescue the accident notification by sending a message using GSM to rescue team with MEMS sensor, GSM and GPS location.
- Design and implementation of notification mechanism for GSM.
- The platform of the system is AVR At mega 328 together with MEMS sensor, it senses the condition of the road used soil moisture sensor, GPS and GSM, the interface that the microcontroller greatly shortens the alarm time and accurately locates the accident site, the information and location will be sent to the ambulance.



III.LITERATURE REVIEW

Proposed system needs every vehicle to be blessed with AN aboard unit (OBU) accountable for sleuthing and coverage accident things to an external management unit (CU) that estimates its severity, allocating the required resources for the operation. The event of a model supported ready-to-wear devices and its validation at the Applus+ IDIADA Automotive analysis Corporation facilities show that our system may notably cut back the time required to alert and deploy the emergency services once an accident takes place. [1] The discussed a kind of style of car location system supported ARM. The design and dealing theory of this technique is introduced in details, and introduces the vehicle location system that uses the ARM silicon chip LPC2129 as a bearing unit to combinative with GPS LR9548 and GSM TC35 modules. Explores location resolution, map-matching and knowledge compress that related to the positioning, shows a program multidimensional language and predicts the trend of the vehicle location system within the future. [2]

IV.EXISTING SYSTEM

An innovative approach to the development of a fluid flow monitoring system was formulated using the YF-DN50 flow sensor and the Arduino Mega 2560 microcontroller. It is possible to ensure the integration of multiple channels of flow sensors at once. The core flow sensor, i.e. YF-DN50, consists of a turbine that is placed inside a plastic case on which a magnet is placed. As the turbine blades rotate, the fluid flows; therefore, the magnetic fluctuation blocks the Hall sensor, the interference rate is subject to the flow rate, and therefore the sensor emits a pulse signal that is used to estimate the volume of water.

A. DISADVANTAGES

- This system will not work in winter due to snowy weather.
- In dense and foggy weather. It will be difficult for the sensor to detect the vehicle.
-

V. PROPOSED SYSTEM

- The aim of the project is the design and construction of a module used for vehicles in mountain stations. The transmitter project kit will be located on the mountain side, it will update the road condition, climate changes to alert the driver with the high frequency communication brake system when the vehicle is moving uphill.
- The project was divided into two phases. The first phase is to demonstrate the use of a hill station for MEMS sensor placement. The second phase of the project attempts to control the motors.
- Design a vehicle detection system using a top station modifying and desegregating existing modules. The GPS module is used to receive vehicle location coordinates and GSM sends the received coordinates to the user via SMS.
- If the person driving the vehicle has an accident, the GSM and GPS information is sent to the ambulance alert.

B.ADVANTAGES:

- Avoid the possibility of an accident on the hill.
- Ensure a safe journey for passengers.
- Provide comfort to the driver on the hill.
- Alerts are sent to the nearest hospitals and police stations.
- An accident warning message is sent automatically.
- This scheme can be used for social purposes.

VI. SYSTEM FUNCTION

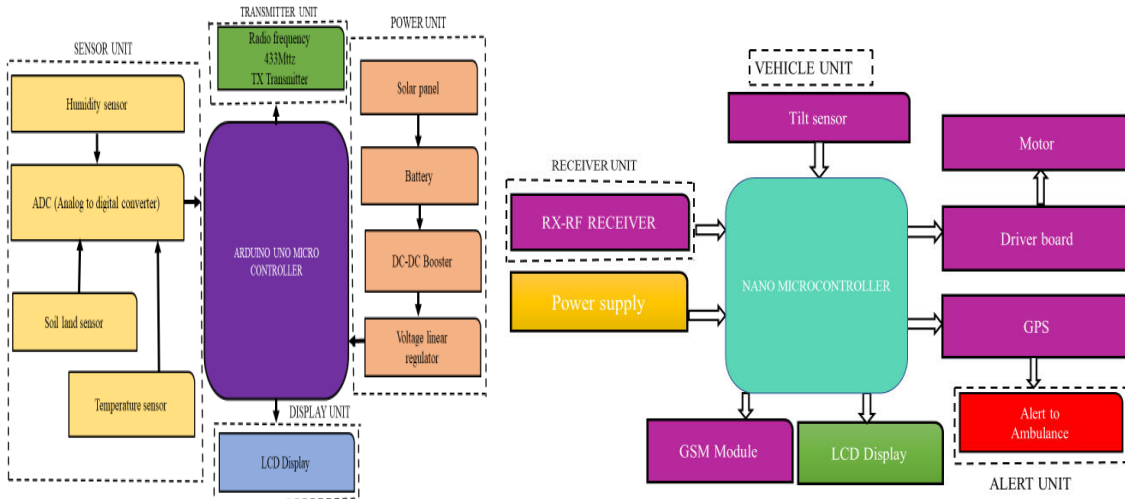


Fig. No.1. Transmitter Block diagram Fig. No.2. Receiver Block diagram

CIRCUIT DIAGRAM

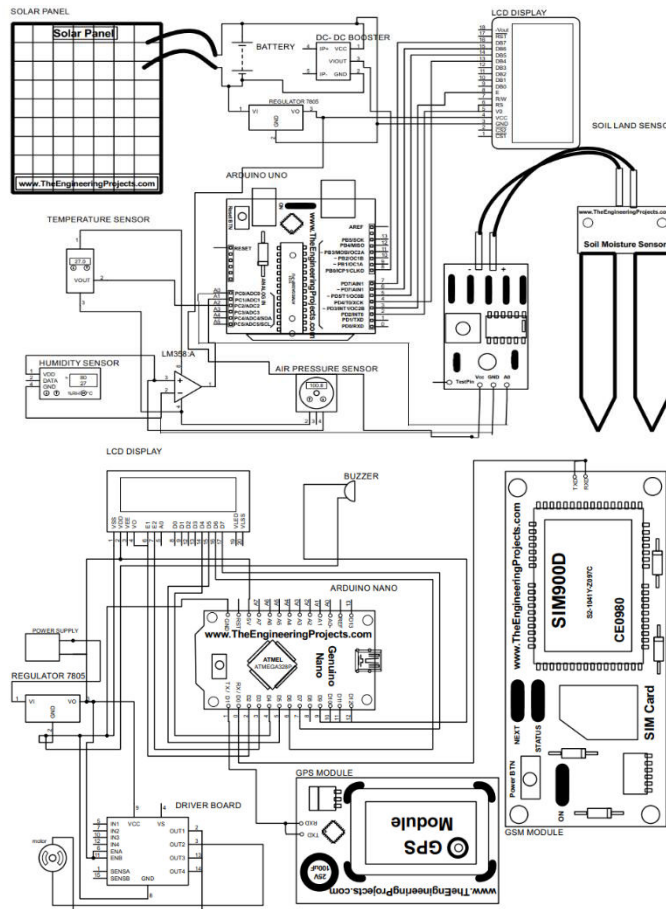


Fig. No.3. Transmitter Circuit diagram Fig. No.4. Receiver Circuit diagram



VII. BLOCK DIAGRAM WORKING

A flow meter is connected to an industrial engine using a flow meter sensor to monitor water flow data, how much water is collected underground. If there is access to unlimited water, the relay will automatically shut down the motor. If the water flow reaches the threshold value, it means that the data will be stored on the peak web page. Here we have also developed an Android app to display water flow data. The water flow data will be displayed on the LCD display. The hardware is connected with the Android app with IOT technology, the details of the water consumption data will be monitored and the payment process will also be paid by this Android app by selecting the payment mode.

VIII. HARDWARE REQUIREMENTS

1. ARDUINO UNO MICROCONTROLLER

Arduino is easy-to-use hardware and software. Arduino is a microcontroller based prototyping board used in developing digital devices read inputs such as finger on a button, touch on a screen, light on a sensor, turning the engine, playing songs through the speaker, etc. An Arduino can be programmed by simply programming the microcontroller on board using a set of instructions for which the Arduino board consists of a USB connector to communicate with your computer and a series of connection sockets to connect to external devices. Such as motors, LEDs, etc.

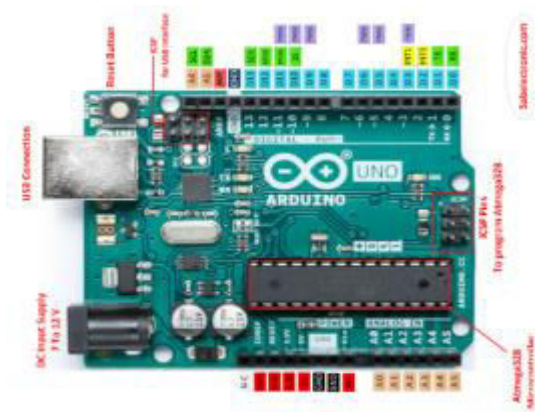


Fig no.5. Arduino uno device

2. LCD DISPLAY

Liquid crystal display (LCD) it is a combination of two states of matter, solid and liquid. An LCD uses a liquid crystal to create a visible image. Liquid crystal displays are super-thin technology screens that are generally used in laptop screens, televisions, mobile phones and portable video games. LCD technologies allow displays to be much thinner compared to cathode ray tube (CRT) technology. The liquid crystal display consists of several layers that contain two polarized panel filters and electrodes.



Fig no.6. LCD display

3. IC VOLTAGE REGULATORS

Voltage regulators comprise the class of widely used to integrated circuits. Controller IC units contain circuitry for the reference source, comparator amplifier, control device, and overload protection in this single integrated circuit. IC units provide regulation of either fixed positive voltage, fixed negative voltage, or an adjustable voltage set point.. A fixed three-terminal voltage regulator an unregulated DC input voltage V_I applied one input terminal, a regulated DC output voltage V_o from the other terminal, with the third terminal connected to ground.

4. HUMIDITY SENSOR

The DHT11 temperature and humidity sensor includes a calibrated digital signal output with a complex of temperature and humidity sensors. A high-performance 8-bit microcontroller is attached. This sensor contains a resistance element and a temperature sensor of a wet NTC device. It has excellent quality, fast response, immunity to interference and high cost of performance Calibration coefficients stored in the memory of the OTP program, internal sensors detect signals in the process, we should call calibration coefficients.

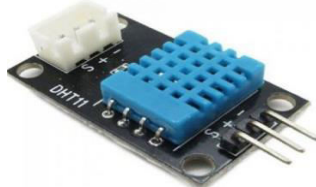


Fig no.7 battery

5. SOIL LAND SENSOR

Soil moisture plays a vital role in field irrigation as well as in plant gardens. Nutrients in the soil provide plants with food for their growth. Water supply to plants is also necessary to change plant temperature. A plant's temperature can be changed by water using a method such as transpiration. And plant root systems also develop better when they grow in moist soil. Extreme levels of soil moisture can lead to anaerobic situations that can promote both plant growth and soil-borne pathogens. This article discusses the soil moisture sensor overview, working and its applications.

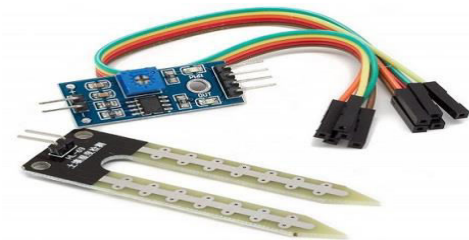


Fig no. 8soil land sensor

6. TILT SENSOR

Tilt sensors are devices produced an electrical signal that changes with angular movement. These sensors are used to measured pitch and roll within a limited range of motion.

Features:

TTL level output that can be connected directly to the controller

- Long life: The best solution for battery powered devices
- Simple single pin interface
- Can work even at low voltage
- Low power consumption
- Cheap and economical



Fig no: 10 Tilt sensor



7. DRIVERBOARD

A bridge circuit using transistors for bidirectional excitation of a DC motor. H-bridges in integrated circuits to reduce the complexity of the drive circuit. The L293D is a dual H-Bridge motor driver, so with one IC we can connect two DC motors that can be controlled clockwise and counterclockwise, and if you have a fixed direction motor, you can use all four I/Os to connect up to four direct current motors. Additionally, IC output diodes are included to protect the circuit.

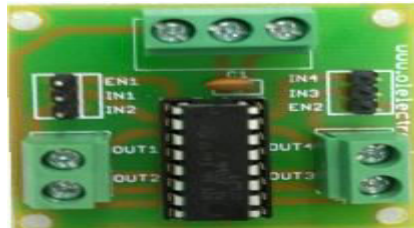


Fig no: 11 Driver board

8. GSM MODULE (Global System for Mobile Communication)

A GSM modem can accept a SIM card from any GSM network operator and act like a mobile phone with its own unique phone number. The advantage of using this modem will be that you can use its RS232 port for communication and development of built-in applications. Applications like SMS Control, data transmission, remote control and logging can be easily developed using gsm. The modem can be connected directly to the serial port of the computer or to any microcontroller via MAX232. It can be used to send and receive SMS or make/receive voice calls.

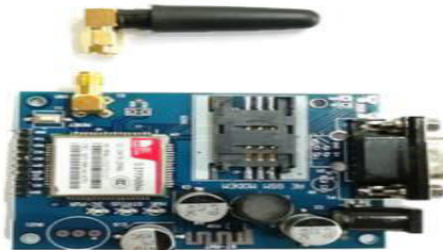


Fig no:12GSM module

IX. RESULTS

The accident location can be located easily and the detection of accident is precise unlike the prior approaches, where detection of accident is done by either of the using sensors. The system comprises used to detected the road accident, information Send to GPS & GSM Module support in sending message. The tilt sensor is used to detect fall and Threshold Algorithm are used to detect accident. Short Message will contain GPS [Latitude, Longitude] which helps in locating the vehicles. Index Terms—MEMS Accelerometer, GPS, GSM.

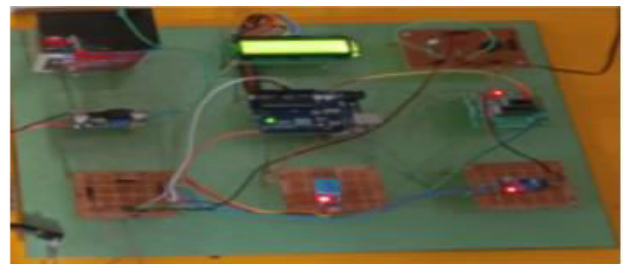
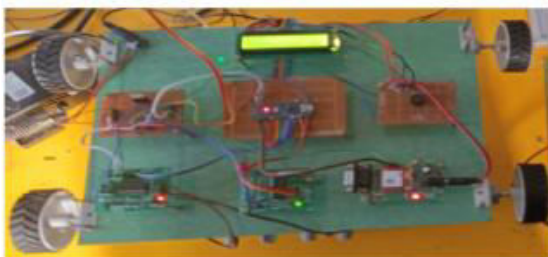


Fig no: 13 Receiver kit overall setup Fig no: 14 Transmitter kit overall setup



Fig no:15 Temperature high



Fig no: 16 Humidity High



Fig no:17 Normal condition



Fig no: 18 Vehicle fall detected

VI. CONCLUSION

This device offers the most realistic alternative to the inadequate emergency services given to victims of road accidents. With the aid of this technology, when an accident happens, prompt action can be taken by alerting the appropriate individuals by sending a message. The accident location automatic detection will help us to provide security to the vehicles and to the lives of the people. The high priority is given to the lives of the people. Hence, this project provides a feasible solution to accident and it gives security to vehicle and reduces loss of valuable lives and property.

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