

SMART STREET LIGHT ACCIDENT IDENTIFICATION AND VEHICLE TRACKING SYSTEM

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Abstract - In this paper, an intention to develop "SMART STREET LIGHT ACCIDENT IDENTIFICATION AND VEHICLE TRACKING SYSTEM". This system has been developed and implemented using the Counter, AT89s52 microcontroller, GSM Module and IR Sensors. If the accident occurred then this system immediately transmit the location of the accident to the emergency care center phone number through SMS. According to this project, when a vehicle meets with an accident immediately IR sensor will detect the signal and sends it to the controller. Microcontroller sends the alert message through the GSM MODEM including the location to registered helpline number. So that person can immediately trace the location through the GPS MODEM, after receiving the information. Then after conforming the location necessary action will be taken. This system will highly aid the search and rescue of vehicles that have met with an accident.

Key Words: IR Sensor, Entry and Exit Gate Counter, GSM Module, Microcontroller, LED

1. INTRODUCTION

Now a days the vehicle accident rate has been increasing day by day, when compared to previous decade the theft rate has been increased by 54% in order to avoid this vehicle accident and the main thing is that, when this mishappening occur on the road so 63% people lost their life due to getting late of ambulance. Main aim of this work is when this happened then quick message goes to the control room and control room send the feedback to cost so in this work the basic microcontroller AT89S52 is used for cost effective and also for easy understanding.



Figure no.1.1 Accident identifier using GPS & GSM

1.1 Accidents

Accidents are an unforeseen and unplanned event or circumstance, often with lack of intention or necessity. The most unwanted thing to happen to a road user is road accident, though they happen quite often. The most unfortunate thing is that we don't learn from our mistakes

on road. It is necessary for a road users to quite well aware of the general rules and safety measures while using roads but it is only the laxity on part of road users, which cause accidents and crashes.

A 1985 study by R. Kumar, using British and American crash reports as data, suggested 57% of crashes were due solely to driver factors, 27% to combined roadway and driver factors, 6% to combined vehicle and driver factors, 3% solely to roadway factors, 3% to combined roadway, driver, and vehicle factors, 2% solely to vehicle factors, and 1% to combined roadway and vehicle factors. Reducing the severity of injury in crashes is more important than reducing incidence and ranking incidence by broad categories of causes is misleading regarding severe injury reduction. Vehicle and road modifications are generally more effective than behavioral change efforts with the exception of certain laws such as required use of seat belts, motorcycle helmets and graduated licensing of teenagers.

1.2 Global Positioning System

Satellite based navigation uses Global Positioning System (GPS) to send and receive the radio signals that serves the user with the required information. GPS posses twenty four satellites that revolve orbit of earth in twelve hours, the ground stations and the receivers. The GPS receiver in the ground station determines the location and distance accurately in all rough's weather without distortions are made easy with the satellite in orbit as a reference. GPS is used in laptop, mobile, airplane etc.

The receiver uses the messages it receives to determine the transit time of each message and computes the distance to each satellite using the speed of light. Each of these distances and satellites' locations defines a sphere. The receiver is on the surface of each of these spheres when the distances and the satellites' locations are correct. These distances and satellites' locations are used to compute the location of the receiver using the navigation equations. This location is then displayed, perhaps with a moving map display or latitude and longitude

2. SYSTEM MODELLING

2.1 Components Used:

- Microcontroller AT89s52
- IR Sensor
- Entry and Exit Counters
- GSM Module
- LED
- Capacitors and Resistors

2.2 Working Principle:

In this project we are basically connect two IR sensors and with these sensors entry and exit counters are placed, between two street lights when any car crosses the first street light then counter counts it one and after exit it counts zero. We are also placed a timer set its time limit of 5 mins, If any car crosses the up counter but not crosses down counter till 5 mins then led glow which means something mishappening occur and GSM module sends the message to the control room through GPS service it will check for the user's authentication and if found to be valid , it will immediately send the details of the locations like the latitude and the longitude using GPS module. This system works with Solar power energy supply.

2.3 Block Diagrams

2.3.1 System Block Diagram

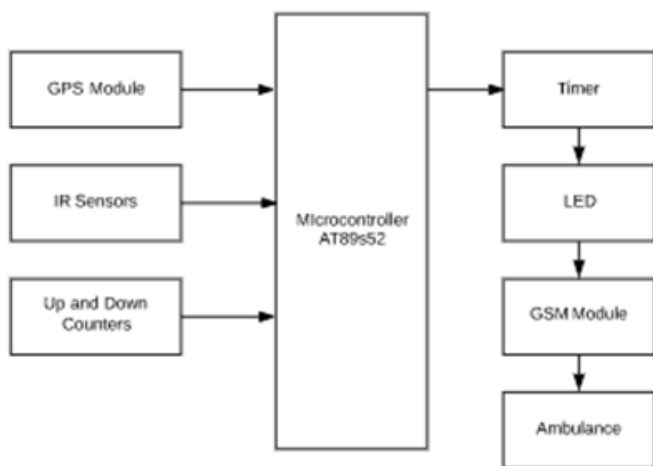


Figure no. 2.1 System Block Diagram

2.3.2 Functional Block Diagram

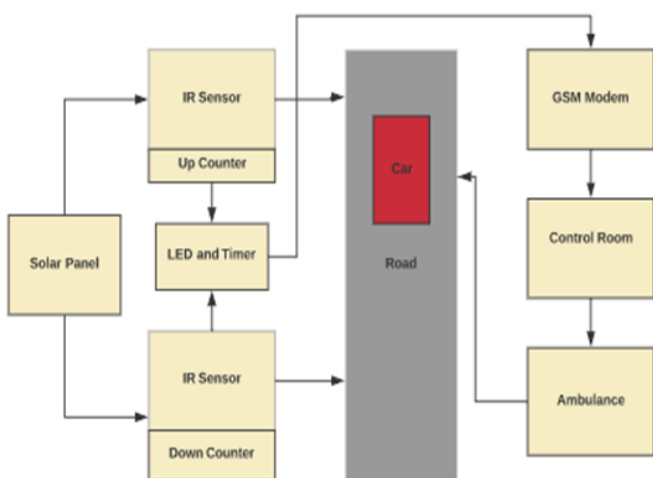


Figure no. 2.2 Functional Block Diagram

3. CONCLUSIONS

With this system, an Embedded System is designed which can be most useful for Accidents. It's a low cost Power efficient system by which the action time can be minimized and exact location of the accident can also be defined with GPS service as well as the information regarding accident can be send to control room then they will send ambulance at that place. Because of the flexibility of the embedded system, this system is very much compatible to any kind of vehicle. A rescue measures in time with sufficient preparation at the correct place can save many lives. Thus, the proposed system can serve the humanity by a great deal as human life is valuable.

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