

Secret System for Work Hour Measurement for Vehicle

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ABSTRACT

In case of vehicle or the industrial machinery the warranty mainly depends on number of working hours or period. This paper provides a new approach to find out work hour measurement. This electronic system design is used to measure the exact working hours of a particular machine. Display is interfaced to microcontroller along with two sensor first is hall effect sensor and second is accelerometer sensor. In this system there are two parts of project. First part is a system to be situated at the vehicle side and another part is a server along with a GSM modem. Both the parts are made to communicate with each other with the help of GSM technology.

Keywords: PIC Microcontroller, Accelerometer sensor, Hall effect sensor, GSM modem.

1. INTRODUCTION

For any purchased products from the market the key thing is the guarantee or warranty. People prefers the products having the more period of warranty. This warranty may be in terms of Time, in term of Kilometer or it also may be in terms of Working hours. If we use secret system by which in spite of any tampering of the Distance Meter or Hour Meter the use of Distance data will be sensed secretly and updated to server periodically by which companies will get the exact used details. And provides the uses details to user and provides the services during warranty period only.

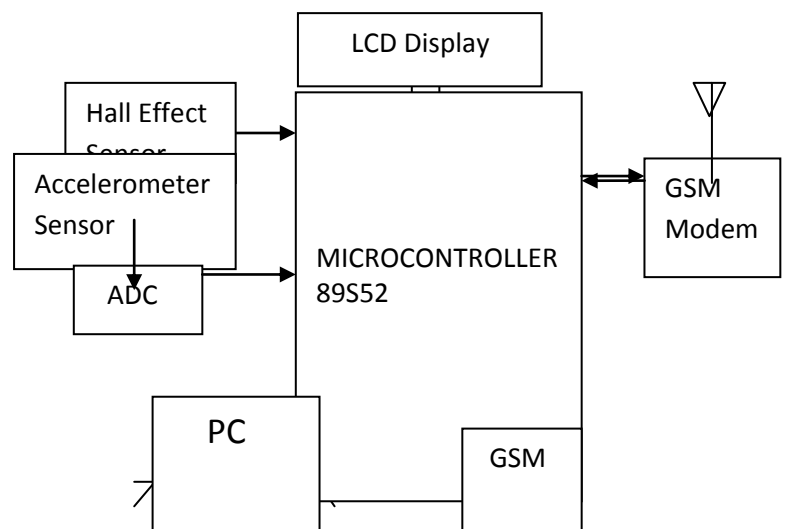
2. NECESSITY OF PROJECT

In earlier 70s when the vehicles were actual in use but with the limited count, it was not that much difficult to manage the after sales services and the maintenance was effectively done. During those days the concentration was on the different vehicle models etc. And in the begining there was no any speedometers or hour Meters for the produced vehicles. After that with the technological improvement the vehicle production increased and with the increased capacity of people the vehicle count also increased. But the main problem was to provide the warranty at a planned time to be carried by the supplier. So the concept of the warranty period

was came in picture and companies started providing some free or paid servicing at a stipulated period . The aim behind this was the vehicle s will be timely

maintained and the reputation of company will be increased which in turn the company sales will be increased. But in that case its observed that due to heavy usage the maintenance problems increased and the company cost for maintenance also increased in turn the manpower required also increased.

3. BLOCK DAIGRAM



3.1. BLOCK DIAGRAM DISCRPTION

In this system there are two parts of project. First part is a system to be situated at the vehicle side and

another part is a server along with a GSM. Both the parts are made to communicate with each other with the help of GSM technology at the vehicle side. A microcontroller is a main part of the system. It requires power supply of 5 volts which is derived from the vehicle battery supply. Again a display is interfaced to microcontroller along with two sensors first is hall effect sensor and second is accelerometer sensor. In this case as microcontroller is not having inbuilt ADC, analog to digital converter(ADC0808CCN) IC is also interfaced. Here main object is to get the machines condition whether it is working or not and in order to sense the same there are two sensors. Used hall effect sensor is placed near the fan of the vehicle. In any vehicle after starting of vehicle a fan must in run condition. If pulses are coming from the hall effect sensor it indicates that machine is in working condition. Again along with the same accelerometer sensor is also used as any machine in working condition creates vibrations and such vibration will be sensed by accelerometer sensor means either hall effect sensor or accelerometer sensor gives input to microcontroller and it acts as a sensing of machine is in working condition or not. Based on the period how much the sensors are giving output the data is recorded and everyday at evening or the set time the SMS of that particular period is sent via GSM module to the server and for each and every vehicle the system server system maintains the database.

4. HARDWARE DESIGN

4.1. PIC89S52 MICROCONTROLLER

The AT89S52 is a low power, high performance, CMOS 8-bit microcontroller with 8K bytes of in-system programmable flash memory. The on-chip Flash allows the program memory to be reprogrammed in-system or by a conventional non-volatile memory programmer.

4.2. ACCELEROMETER SENSOR

GY-61 is a small, thin, low power, complete three-axis accelerometer voltage output through the signal conditioning at a minimum of full scale ± 3 g measurement range. Any machine in working condition creates vibrations and such vibration will be sensed by accelerometer sensor.

4.3. HALL EFFECT SENSOR

A Hall effect sensor is a transducer that varies its output voltage in response to a magnetic field. Hall effect sensors are used for proximity switching, positioning, speed detection, and current sensing applications.^[1] Hall sensors are commonly used to

time the speed of wheels and shafts, such as for internal combustion engine ignition timing, tachometers and anti-lock braking systems.

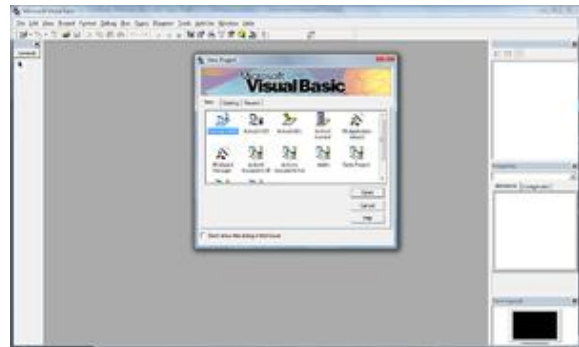
4.4. GSM

Messages sent by the user are received by the GSM module. Micro controller will play important role in sending and receiving commands to GPS. Micro Controller extracts the location name and send the same to the GSM via serial communication. Micro controller will find location and send details to GSM Mobile using serial communication system.

5. SOFTWARE DESIGN

Visual Basic

Visual basic is a third-generation event-driven programming language. The companies will create a server with the help of visual basic software and SMS access for its database.



6. FLOWCHART

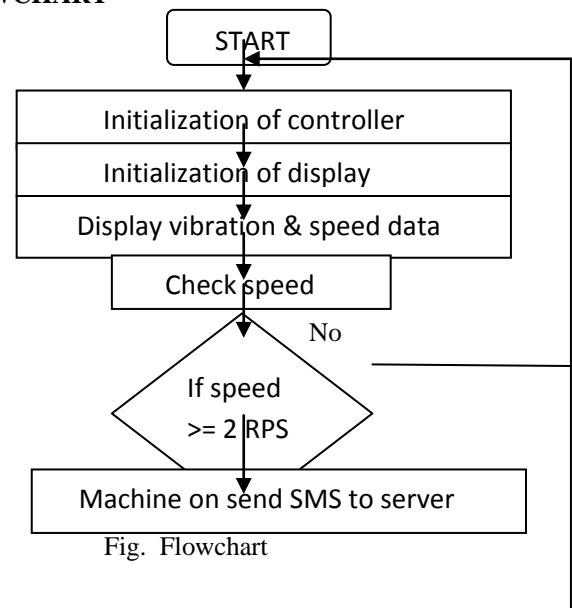
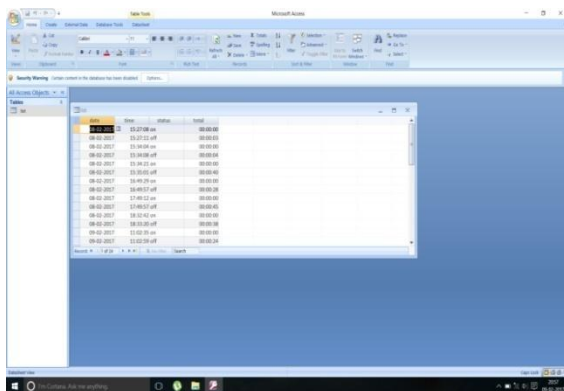
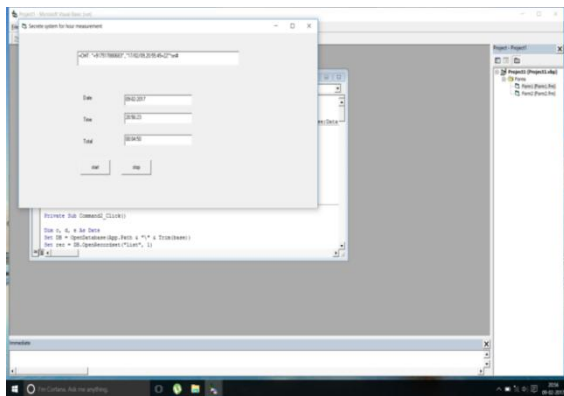
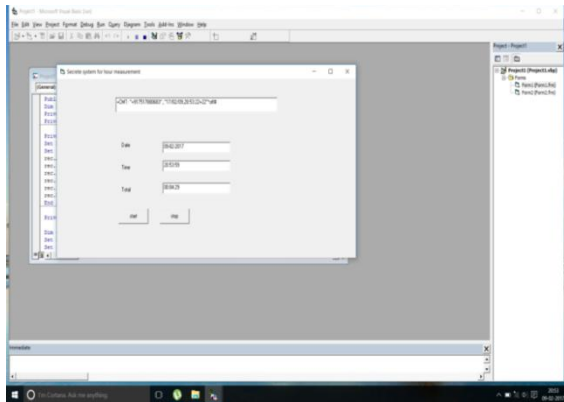


Fig. Flowchart

7. RESULT

The companies will create a server with the help of visual basic software and SMS access for its database. All the vehicles under warranty are registered with the software all the vehicles data of work hour meter is auto recorded to the server based on the time span or the working hours warranty periods already set system automatically checks and gives a pre alert for each and every servicing to the vehicle owners mobile numbers are also taken into consideration in the data base of the controller.



8. CONCLUSION

First of all the secret system by which in spite of any tampering of the Distance Meter or Hour Meter the use of Distance data will be sensed secretly and updated to server periodically by which companies will get the exact used details of machine or vehical. And provides the uses details to user and provides the services during warranty period only.

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