Arduino Based Intelligent Multitasking System for Milk Tanker

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Abstract: The design in this project showcase the implementation of arduino base intelligent multitasking system for milk tanker. This system consisting of the Arduino , GPS & GSM Module, LCD display, Magnetic reed relay sensor & PT100 sensor. It performs the function like temperature sensing and real time path tracking. It also includes system for safety messages, warning messages and traffic conjunction messages By using magnetic reed relay and limit switch we can detect if any fault occur at knob side. This system operates with the aid of Arduino, sensors, GPS & GSM module which will control the whole function of the system.

Index Terms: Arduino, GPS module, GSM module, Temperature control, sensors, VB Server.

I. INTRODUCTION

Milk transportation is one of the essential part in day to day life. Villages contain number of dairies which are connected to nearest milk centers. There are various problems we are facing while transportation of milk from one place to another place. Real time tracking and management of vehical has been a field of interest for many researchers. Lot of research work has been done for tracking system. This system can easily track the path of milk tanker by using GPS and GSM module. In this design the current leading GPS technology is used. The receiver has serial communication facility which is used to interface with the external devices like PC or ARM controller. The process data can be transfer to the GSM through serial communication and to the owner. The temperature of milk can be detected by using various sensors like PT100. Presentation of adulteration of milk can also be detected and henceto maintain the quality of milk. The project will be more efficient for accurate planning of product manufacturing. The project is an automated system to reduce the problems such as misuse offrauds and detected the traffic problem. In addition to efficiency it has lower cost The system will overprovide a detail report on the milk loaded send to the receiver , this includes the temperature and quality.

II. LITERATURE SURVEY

- Real time tracking and management of vehicle has been a field of interest for many researchers lot of research work has been done for tracking system.
- International Journal of Computer Science, Engineering and Applications (IJCSEN) June 2013, this paper published the design the GPS-GSM based tracking system with Google based monitoring.
- I.J. Intelligent System and Applications , August 2014 proposed to design vehicle tracking system that works based on embedded system which is useful to track the position of vehicle by using GPS & GSM

- In this design the current leading GPS technology. The receiver has a Serial Communication facility which is used to interface with the external devices like PC or ARM Controller. The processed data can be transferred to the GSM through serial communication and to the owner.

III. BLOCK DIAGRAM
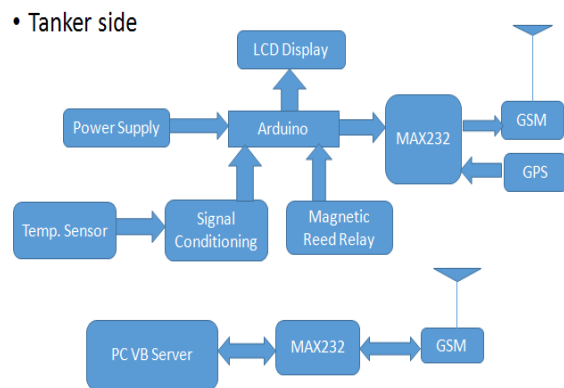
IV. WORKING OF SYSTEM

The main purpose of this project has been chosen to minimize the problems related to the milk transportation by using various sensors , anteena and GPS & GSM technology. The owner of the milk would not have to keep watch or should not worry about the safety of milk. Multitasking system for milk tanker will be the most efficient system for all such problem This project is an automated system .The project is an automated system to reduce the problems such as misuse of milk , frauds and detect the traffic problems. In addition to efficiency it has lower cost. The systemwill overall provide a detailed report on the milk loaded send to the receiver , this includes temperature and quantity.

The basic functionally and the main principle of the established system is to sense the temperature of milk at various stages of transportation . All these changes in temperature will be processed by the Arduino which is a open source microcontroller board. Arduino UNO3 is the main component of the system installed in the circuit. Arduino is interfaced with the LCD display , GPS and GSM which will default the position of the tanker. Our system will starts working when tanker will starts travelling as we are introducing our system to the tanker side only .The temperature of the milk in the container will measured by PT100. Sensor after a particular duration of time and it goes to the receiver station .The system also has a limit switch which is helpful to give information related to knob seal of container. This estimation is done so that if any one tries to break the seal or if any misuse of milk that will inform to receiver station. The magnetic reed relay sensor use in the system will help to know problems regarding seal of main container. These all sensors are interfaced with ARDUINO UNO 3 and output (change in temperature, speed and GPS coordinates) will be displayed on the screen of LCD. The GPS receiver and GSM module are interconnected to each other and then interface to arduino. Through this interface, system can have real time monitoring information –exchange with owner at remote place. The wired antenna is connected to the GPS receiver which will receive signal and through GSM it will send the message for further processing and location identification. The GPS tracks latitude and longitude of the earth mover. Controller extract information from GPS and sensor will send by using GSM. The GSM module has sim card interface to it so that it will send message to the owner where tanker exactly is and what is the situation of tanker. The GPS receiver of vehicle terminal receive and resolve the navigation message broadcasted by the GPS position of satellite and transfer it into GSM message form by GSM communication controller and send the message to monitoring the center via GSM network. The GSM module has sound facility to show whether signal is received or not. With the help of multimedia cell phone or PC with internet we can find exact location of the vehicle equipped with this system. Further real time path tracking visual basic (VB) server is used at owner side. It will be easy for COMFED authorities to spot if vehicle stick to designed route or not.

V. DESCRIPTION OF SNAPS

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* Following snaps shows the related steps of this project.
* First snap gives us the interfacing of the LCD and Temperature sensing PT100 to the ADUINO.
* It includes interfacing of the LCD to ARDUINO and we took the temperature sensor PT100 interfaced to ARDUINO.
* Then in second snap we interfaced GPS and GSM together, and then it interfaced with the ARDUINO.
* Then next snap gives the actual outcome of the

system that is the longitude and latitude (coordinatesof GPS)which gives location and position of the particular place by using which we knows the exact location of the tanker and simultaneously temperature of milk.

* The last snap gives the simulation of the temperature sensor PT100 to the ARDUINO. This simulation is useful for dumping the program and it will check the output on software. Then we burn this program on IC of Arduino so it gives exact outcome.
* The last snap gives us the information regarding to the valve or main seal if it is open or not. If any one try to open the seal of container then with the help of sensing device limit switch and magnetic reed relay sensor the receiver can know that.
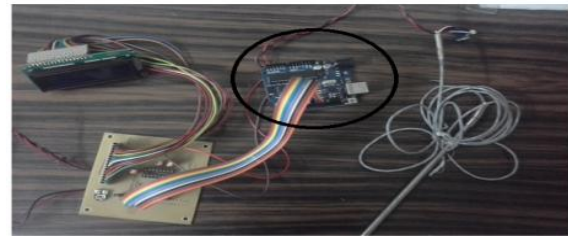
ACTUAL IMPLEMENTATION

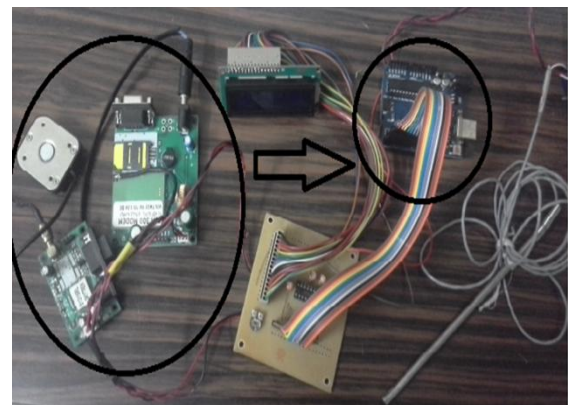Fig:- LCD and Temperature sensor (PT100) interfacing with ARDUINO

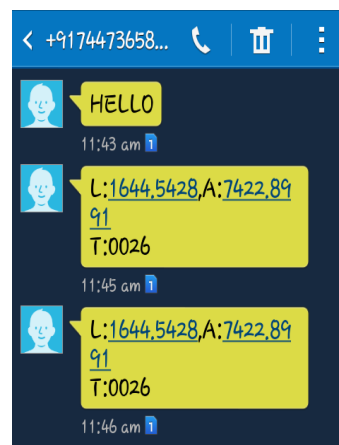Fig:- GPS and GSM interfacing with ARDUINO

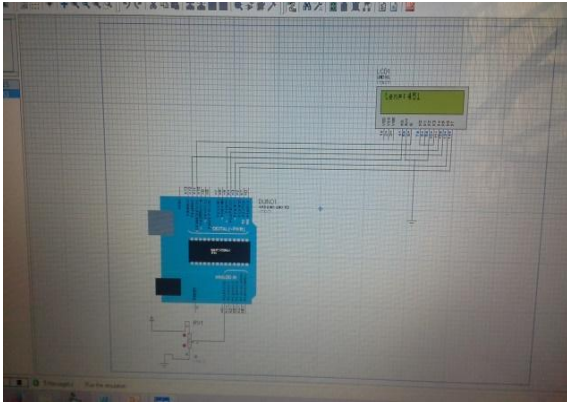Fig: Received Message (GPS coordinates and temperature)
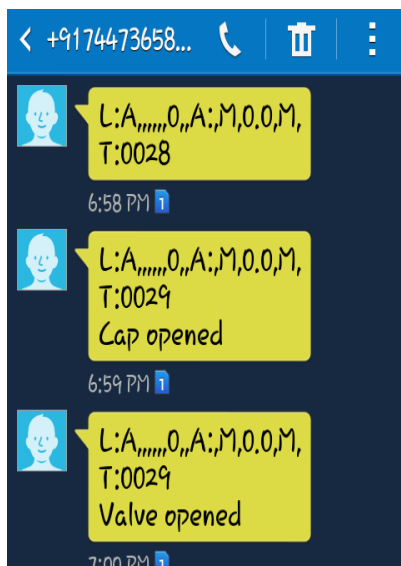
Fig:- simulation for temperature sensing

Fig:- Received Message (Limit Switch and Magnetic reed relay sensor)

VI.CONCLUSION

Real time tracking and management of vehicle has been a field of interest for many researchers lot of research work has been done for tracking system. International journal paper of Computer science, Engineering and Application (IJCSEN) June 2013, this paper published the design the GPS-GSM based tracking system with Google based monitoring. This group designed the system particularly for milk tankers. The sensors like PT100, limit switch sensor and magnetic reed relay sensors are interfaced with arduino to sense the change in temperature of milk during transportation. System also provide information related to knob seal of container which will provide safety. The real time tanker situation and its exact location can also be detected. Hence proposed system is very efficient and useful now a days.

ACKNOWLEDGMENT

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BIOGRAPHIES

Mrs. Jyoti M Waykule, received her B.E degree in Electronics and Telecommunication Engineering from K. B. Patil college of Engineering, Satara affiliated to Shivaji University, Kolhapur, Maharashtra, India. And her M.Tech degree in Image Processing from Walchand college of Engineering Sangli affiliated to Shivaji University Kolhapur, Maharashtra, India. Currently she is working as Assistant Professor in the department of Electronics and Telecommunication Engineering in Sou Sushila D. Ghodawat Char. Trust group of Institution , Atigre , Kolhapur , Maharashtra , India. Till she had published 7 papers in International Journal

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