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AN INTEROPERABLE MODEL FOR SMART VEHICLES

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Abstract— Smart Computing is a new generation of integrated hardware, software and network technologies that provide IT systems with real-time awareness of the real world and advanced analytics to help people make more intelligent decisions. In today's world it is commonly noticed that two wheelers are the most commonly used locomotives. As day by day population is increasing there is a heavy demand for new two wheelers. The aim of this paper is to provide smart bike monitoring system that will help in saving human lives and also avoid engine seize. The system has two units that comprises of identifying viscosity of an engine oil as well as speed of a bike and providing a SMS to the mobile number which is stored in the memory when a bike exceeds the speed limit. If this idea is implemented, it helps to avoid the accident, engine seize and saving human lives.

Keywords— Global Positioning System (GPS), Global system for mobile communication (GSM), speed limit, sensors, viscosity and ARM7

1. INTRODUCTION

Human beings always want to make their lives comfortable by making intelligent system which works faster, very efficiently than humans. This paper can gather the information such as current position of bike through GPS and GSM, in case of an speed limit exceeded by alerting the family member by sending the message on default number saved on chip, thus it would help to save the person before an accident by warning that person from his/herparent. If the engine oil of a bike drained, then engine seized. So, the limit is set for the viscosity of an engine oil. If, the viscosity decreases the certain limit, then an alert message will be provided to the mobile number which is

stored in the mobile chip of an embedded system.

1.1 ARCHITECTURE

The system mainly consists of two modules,

i)Temperature of an engine limit alert: When the temperature of an engine increases a certain limit, then an alert message will send to the mobile number which is stored in the memory.ii) Speed limit of a bike alert: When the bike exceeds the certain limit, then providing a SMS to the mobile number stored in chip of embedded system. This will help to save the person before met to an accident.







Fig. 1. Process Architecture

This paper is organized as follows,

- Section 1 describes the smart computing and the architecture.
- Section 2 deals with the related works.
- Section 3 works with the research directions and the proposed work.
- Section 4 discusses about the survey.
- Section 5 consists of the conclusion.
- Section 6 with the references.

2. RELATED WORKS

[1] S.P. Joy, V.S. Sunitha, V.R.S. Devi, A. Sneha, S. Deepak and A.J. Raju were developed the security enabled speed monitoring system for two wheelers using wireless technology. In this, they are integrating both security and speed monitoring in a single system, using

wireless technologies RFID, GPS, ZIGBEE and GPRS. The speed is continuously monitored without any restriction and reduce thereby. can two wheeler accidents.[2] S.R. Rupanagudi was developed the video processing based smart helmet for rear vehicle intimation & collision avoidance system. In this, they present a novel methodology, which monitors in real time the traffic scenario behind the driver of a motorcycle and also an intimation system to inform him about the same. A cost effective setup and an accurate algorithm used in conjunction have also been elaborated.[3] K.A. Mamun and Z.Ashraf were developed the anti-theft vehicle security system with preventive action. In this, they design and implemented by utilizing sensor-network system which employ Global Positioning System(GPS) and Global for System Mobile communication(GSM) technology to track the vehicle. The cutting edge technology of ATV2S is capable to protect, monitor and vehicle track the even within а minute.[4]E.N. Barmpounakis. E.I. Vlahogianni and J.C. Golias were developed the intelligent transportation systems and powered two wheelers traffic. In this, they review the PTW research conducted with respect to the modelling parameters, date issues, and their effect on a multimodal environment. Findings reveal that PTWoriented ITS are mainly safety oriented, whereas similar systems for solving traffic issues have not yet been proposed.[5] E. Fssl et al., was developed the specific tool for assessing acceptability of assistive systems of powered two-wheeler riders. In this, they describes the methodological development of a special tool for assessing motorcyclists acceptability of ITS, as part of the motorcyclist's profiling

questionnaire(MOPROQ).[6] D. Mazumdar, S. Das, N.P. Rao, A. Sivakumar and J. Dhinagar were developed 48V starting systems for a two wheeler parallel hybrid. They presents a novel concept of communising the operating voltage of the lower voltage rated-starting system and higher voltage rated-traction motor by using a single battery and compares with the conventional approach of using two separate batteries.[7] Tingting He, Hangguan Shan Aiping Huang were developed and decentralized RSU-based real-time path planning for vehicular ad hoc networks. The path planning problem is formulated from two layers i.e., area path selection in upper layer and intra-area routing in bottom layer. Their proposed algorithm inherits the anticongestion capability and owns the advantage of low complexity, as compared with the shortest path algorithm and centralized algorithm.[8] D. Punetha and V.Mehta were developed the protection of the child/elderly/disabled/pet by smart and intelligent GSM and GPS based automatic tracking and alert system. In this, the carrier of the tracking system intentionally or unintentionally tries to cross a particular predetermined area/region then an SMS is sent to a predefined phone number disclosing the coordinates of the location.[9] A.J. Francis, U. Rajendran and V.K. Sadagopan were developed the anti-theft control system design using embedded system. In this, they makes use of a embedded chip that has an inductive proximity sensor, which senses the key during insertion and sends a text message to the owner's mobile stating that the car is being accessed.

3. RESEARCH DIRECTIONS

To avoid the engine seize and accident some features such as we introduced i)Temperature of an engine alert and ii) Speed limit of a bike alert. If the temperature of an engine raises to an certain limit, then engine will be seized. So, the limit is set for the temperature of an engine. If, the temperature increases to the certain limit, then an alert message will be provided to the mobile number which is stored in the mobile chip of an embedded system.Gather the information such as current position of bike through GPS and GSM, in case of an speed limit exceeded by alerting the family member by sending the message on default number saved on chip, thus it would help to save the person before an accident by warning that person from his/her parent.

4. DISCUSSIONS

The process starts by measuring the temperature of an engine and if it reaches a limit stored in an embedded system, then an alert message is sent to the mobile number stored in a chip. When the bike exceeds the certain limit, then providing a SMS to the mobile number stored in chip of embedded system. This will help to save the person before met to an accident.

5. CONCLUSION

An interoperable models for smart vehicle sis a new design for to prevent two wheelers form accident. The Arduino microcontroller is the brain of the system. The current position of the bike is measured with the help of GPS. GSM is used for communicating with the user. When the temperature of an engine increases to a certain limit, then an alert message will send to the mobile number which is stored in the memory. When the bike exceeds the certain limit, then providing a SMS to the mobile number stored in chip of embedded system. This will help to save the person before met to an accident.

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