

Intelligent Helmet for Two Bickers

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ABSTRACT

This paper Road safety is a major issue of concern; it becomes necessary to implement such a technique which is not easy to bypass the basic rule of wearing helmet. Taking this as our aim, we are designing such a system which will make the helmet necessary to wear, thus improve the safety of the biker by using infrared system. Also in case of accidents, the information about the location of the accident site will be informed to the relatives of the injured person, this will make it easy to track the person and give him prompt medical attention, in case if he/she is unconscious. This will be done using the advanced concepts of JAVA Programming (JavaScript, j2me) and GSM concepts and Microcontroller 8051 based circuitry.

1. INTRODUCTION

In today's era, especially in the young generation, the craze of motorbikes is really remarkable. The middle class families prefer to buy motorbikes over 4-wheelers, because of their low prices, various varieties available in the market, due to cut-throat competitions between 2-wheeler companies and durability. As the bikers in our country are increasing, the road mishaps are also increasing day by day, due to which many deaths occur, most of them are caused due to most common negligence of not wearing the helmets, also many deaths occur due to lack of prompt medical attention needed by the injured person. This motivates us to think about making a system which ensures the safety of biker, by making it necessary to wear helmet, as per government guidelines, also to get proper and prompt medical attention, after meeting with an accident. The project aims at the security and safety of the bikers against road accidents. The circuit is so designed that the bike won't start without wearing helmet. Also, if the driver is drunk, the bike will not start thereby preventing drunken drivers. And in case of accident, the GPS system will globally located the biker and immediate message will be sent to the family members about the location of accident.

2. SYSTEM ANALYSIS

SDLC (System Development Life Cycle) A structured sequence of phases for implementing an Information system is system design life cycle of that system. The various steps involved in the system design life cycle are as follows: -

2.1 Reorganization of need (preliminary survey/initial investigation): -

The steps involve about outlining the problem and understanding what are the present methods of solving the problems, which are useful in designing the system. It includes preliminary survey/initial investigation as well.

2.2 Feasibility study: -

(Evaluation of existing system and procedures analysis of alternative candidate systems cost estimation) The feasibility study is a formal proposal for a new system. Before the project is to begin, the project is studied to determine what exactly the user wants depending upon the result of initial investigation. The survey is expanded to more detailed study. Feasibility study can be understood by giving the answer/solution of these their requirements: -

2.2.1 What are the user's demonstrable needs and how does a candidate system meet them?

Our new system covers all the basic of the user for e.g.: as mentioned earlier that our database is Ms Access, which does not have any limitation to store data. And one of the major advantages of new system is that it avoids redundancy means there is no repetition of the data.

2.2.2 What is the likely impact of the candidate system on the organization? & How will do if fit

Within the organizations master M.I.S. plan: -

The new system is well fitted in the actual working condition, because it covers all basic needs of the user who uses the system. It is less tedious and less time consuming.

2.2.3 System analysis: -

Analysis is a detailed study of various operations performed by the system and the relationship within

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and outside of the system that is it includes finding out in more detailed what the system problem are and what are the different new changes the user wants.

2.2.4 System design: -

The system design is most creative and challenging phase of the system design life cycle. Analysis phase is used to design the logical model of the system and system design the physical model of the system:

In these phase system designer designs: -

2.2.5 Output: -

Output design means that what should be the format of presentation of the result. First of all for designing of various forms to be present which is the front end of our software.

2.2.6 Input: -

In input design stage, which is the part of the system design stage the system analyst has to decide what inputs are required for the system and prepare input format to give input to the system according to the requirement. Considering the input to the front end from the user we use the user-friendly visual basic software so that the user can easily enter the data. In case operator gate confuse then the by moving the cursor pointer on the corresponding field data user can get one tool tip box as example.

3. DATA FLOW DIAGRAM

LEVEL 0:

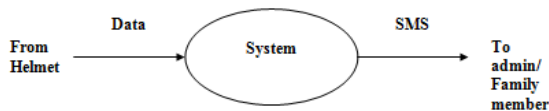


Fig 1 : Data Flow Diagram Level 0

LEVEL 1:

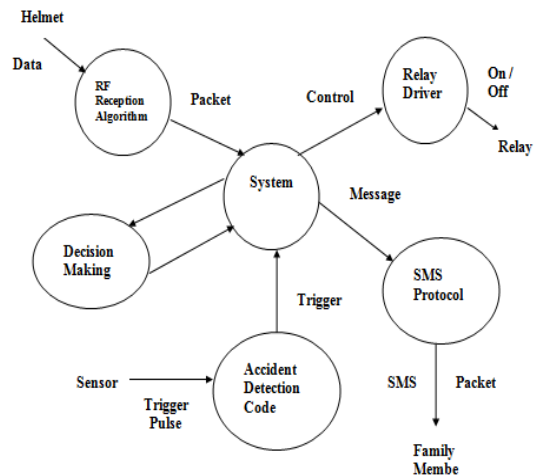


Fig 2 : Data Flow Diagram Level 1

LEVEL 2:

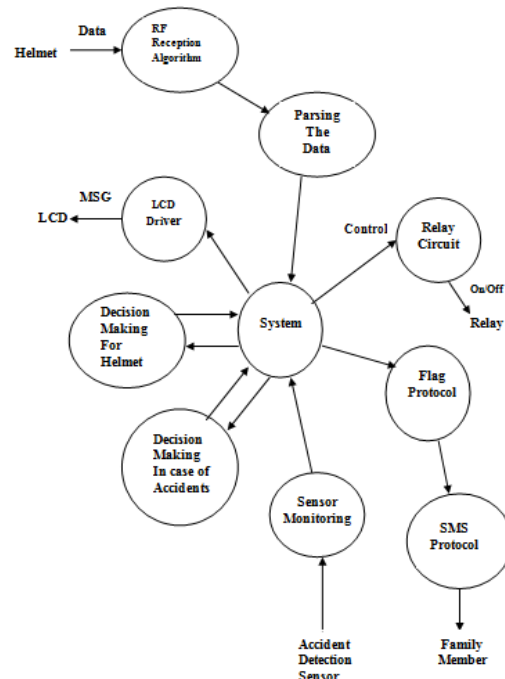


Fig 3 : Data Flow Diagram Level 2

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4. BLOCK DIAGRAM

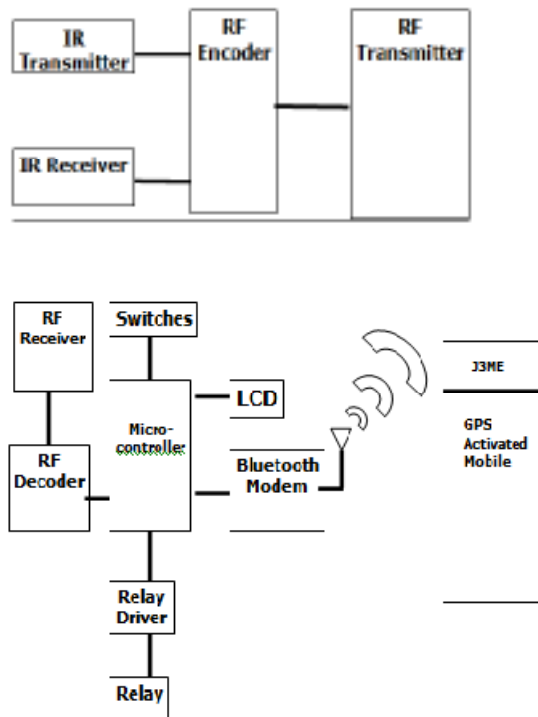
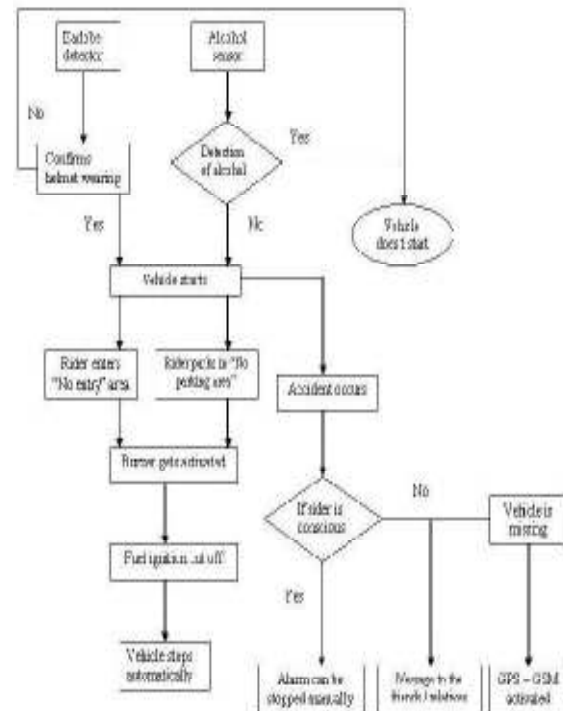


Fig 4 : Block Diagram

5. ACCIDENT INTIMATION & THEFT DETECTION

GSM is used in the case of accident detection and theft detection application. In case of any accident the alarm will get activated, if the rider is in conscious stage he would suppress the alarm; if not a short message service will be sent to the friend's mobile number. Various mobile numbers can be programmed in the microcontroller. GSM and GPS do not communicate directly with each other. Microcontroller acts as an intermediate between them. To know the location of the vehicle soon after the theft, rider has to send an SMS to the modem present in the vehicle unit. GSM set up in the vehicle unit consists of subscribers identity module (SIM) whereby it receives the SMS and communicates with GPS regarding the current location of the vehicle position and sends the message to the pre defined mobile number(s) programmed in the microcontroller. For the detection of accident, the sensor is attached to the body of the vehicle. When the vehicle meets any crashes, the buzzer will get activated due to activation / damage of the sensor. If

the rider is in conscious condition, he/ she can suppress the buzzer. Otherwise the message will be sent to the friends/relatives continuously till the help reaches the rider. The overall performance of the system is shown in fig. 5.



6. PROS AND CONS:

PROS:

- Provides a better security to the biker.
- In the case of accidents, where every minute is important, the user can be traced within a second, so as to provide him with all necessary help will be simplified.
- As after wearing helmet, it is necessary to provide code, through mobile is necessary, it is impossible to steal a bike, as a unique code is provided to each biker.
- Suitable during long distance journeys.
- Can be modified for four wheelers.

CONS:

- The technologies used IR, Bluetooth have some range specifications.

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- Sometimes in remote areas where the GSM networks cannot reach, it will be difficult to trace the biker, if accident happens.
- The user must have the GPS enabled mobile, for system to work.

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