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Version Number:

Team Members :

Team No:

Module: Model Based System Engineering

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| **Ver.Rel. No.** | **Release Date** | **Prepared. By** | **Reviewed By** | **Approved By** | **Remarks/Revision Details** |
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**Document History**

CASE STUDY ON VECHILE SPEED TRACKING DEVICE

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**REQUIREMENTS:**

This case study on vehicle speed tracking device for the purpose of reducing road accidents. There is a compelling need for a device which can be used to detect vehicles driving above the approved speed limit set for various roads.

**HIGH LEVEL REQUIREMENTS:**

* System should the motion of vehicle using sensor
* Time interval taken for both sensors to detect the vehicle
* Distance between the sensors is used by the microcontroller to calculate the speed of vehicle then displayed on the LCD
* If the speed is higher than limits buzzer automatically alert traffic police

**LOW LEVEL REQUIREMENTS:**

* Road traffic signals between kilometers
* No drink and drive

**RESEARCH:**

The International Road Federation reported that approximately 1.3 million people die each year as a result of road traffic crashes. Speed is the main key risk factor that results in crashes. There is high need for this device to track the speed of vehicle to ensure proper speed limit is maintained.

**BLOCK DIAGRAM:**

Voltage

Regulator 1

Rectifier

Transformer

Voltage Regulator 2

6v Battery

MICRO

CONTROLLER

IR sensor 1

LCD

Arduino

Program

Buzzer

IR sensor 2

**COMPONENTS DESCRIPTION**:

1. Transformer – Transfers alternating current energy from one voltage to another voltage.

2. Rectifier – Converts AC to DC flows in only one direction.

3. Voltage Regulator – Creates & maintain fixed output voltage. Keep a voltage from power supply within a range that is compatible with other electrical components.

4. Buzzer – Audio signal device to alert

5. IR sensor – Detects the motion of vehicle here.

6. Ardunio – Program will compact and small. Increases the readability of the code,

Organizes the program.

7. Microcontroller – Control all the operations.

8. LCD – Displays the result if the speed limit exceeds.

**APPLICATIONS:**

* Road Accidents by speed of vehicle can be controlled.
* Death rate can be decreased.
* Can set and maintain the best speed limits.