 

**Digital Electronics and Computer Architecture Laboratory**

**PG-6**

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**Class Group: Section: Project Group (PG):**

**Project Abstract**

**Project Title: Smart accident prevention system Project Category:**

|  |  |
| --- | --- |
| Microcontroller Based | **yes** |
| Non-Microcontroller Based |  |
| Only Software Based |  |
| Others |  |

**Abstract:**

The Smart Road Safety and Vehicle Accident Prevention System represents an innovative approach to mitigate the heightened risks associated with mountain roads. This project focuses on employing advanced technology and a systematic methodology to enhance safety in challenging terrains. The core methodology involves the integration of essential components, including Infrared (IR) sensors, LED lights, an LCD display, and a buzzer, all powered by an Arduino board. When two vehicles approach each other on a mountain curve, the IR sensors detect their presence, triggering a sequence of actions. The LED lights change to red and activate a buzzer, promptly signaling imminent danger to drivers. As one vehicle passes safely, the system switches one LED light to green, allowing the other vehicle to proceed, ensuring a safe passage for both. This abstract highlights the potential for further enhancements, including distance and speed sensing, wireless communication, GPS navigation assistance, machine learning for predictive analysis, weather sensors, emergency services integration, and an intuitive user interface. These additions would fortify the system's effectiveness in safeguarding lives and preventing accidents on challenging mountain roads. In summary, the Smart Road Safety and Vehicle Accident Prevention System is a pioneering project that leverages technology and a thoughtfully designed methodology to address road safety concerns in mountainous regions, offering real-time warnings to drivers and reducing accident risks. Application Area(s) of Project: Implement the Smart Road Safety System on tourist routes through challenging terrains to reduce accidents, enhance safety for tourists.

**Application Area(s) of Project:** Arduino Microcontroller based, IR Sensors, Buzzer, LED’s, Resistors, Capacitors, Transistors, etc.

**Technology Stack:** *“Write here the technology used in your project, Microcontroller name, sensors name, etc.”*

**Batch Details:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name of Students** | **Roll No.** | **Project Guide (Name and Signature)** | **Approved By**  **(Signature with Date)** |
| **Jivansh midha** | **2310992110** | *“(if guidance is taken from M.Tech Faculty, then write his/her name and take signature, otherwise write your lab faculty name)”* | *“(Lab faculty Name and Signature with date)”* |
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