



Basic Details of the Team and Problem Statement

Ministry/Organization Name/Student Innovation: Student Innovation

PS Code: SIH1477

Problem Statement Title: Advanced Driver Alert and Safety System with Real time Accident Detection and location Sharing

Team Name: Team Defender

Team Leader Name: Hari Chandan Das

Institute Code (AISHE):

Institute Name: Gandhi Institute of Engineering And Technology , Gunupur

Theme Name: Smart Vehicles

Team Member Details

Team Leader Name: Hari Chandan Das

Branch : Btech

Stream : CSE

Year (I,II,III,IV): III

Team Member 1 Name: Sandeep Lenka

Branch : Btech

Stream : CSE

Year (I,II,III,IV): III

Team Member 2 Name: G . Saswitha

Branch : Btech

Stream : CSE

Year (I,II,III,IV): III

Team Member 3 Name: Komal Singh

Branch : Btech

Stream : CSE

Year (I,II,III,IV): II

Team Member 4 Name: Ankeet Kumar Sah

Branch : Btech

Stream : CSE

Year (I,II,III,IV): II

Team Member 5 Name: Gayatri Pradhan

Branch : Btech

Stream : CSE

Year (I,II,III,IV):II

Team Mentor 1 Name: Dr . Raghavendra Kumar

Category (Academic/Industry): Academic

Expertise (AI/ML/Blockchain etc): IOT

Domain Experience (in years):

Problem Statement

Road accidents continue to be a pervasive and critical issue globally, causing loss of life, injury, and extensive property damage. The current systems for accident detection often suffer from delays and inaccuracies, hindering swift emergency response. Additionally, precise location information is not promptly and efficiently shared, impeding timely medical assistance and rescue operations. To address this problem effectively, there is a pressing need for a comprehensive solution that integrates real-time accident detection and precise location sharing to significantly reduce the frequency and severity of road accidents, ultimately improving road safety and saving lives

Idea/Approach Details

Describe your idea/Solution/Prototype here:

- Our hardware solution mainly consists of two primary modules.
- **Module 1:** It is called as the "Auto Braking and Alerting System," is activated initially.
- **Module 2:** It is called as "Real-time Accident Detection and Location Sharing,"
- Module 2 starts its initiation if the module 1 fails to execute properly



Describe your Technology stack here:



Idea/Approach Details

Describe your Use Cases here

- **It will Alert the driver and automatically slow downs the car in case of driver drowsiness**
- **To detect the driver drowsiness it will detect the movement of the eyes**
- **In case accident takes place then according to the vibration created it will automatically alert the nearby hospitals**
- **The nearby hospitals will get the alert message along with the live location of the accident place**

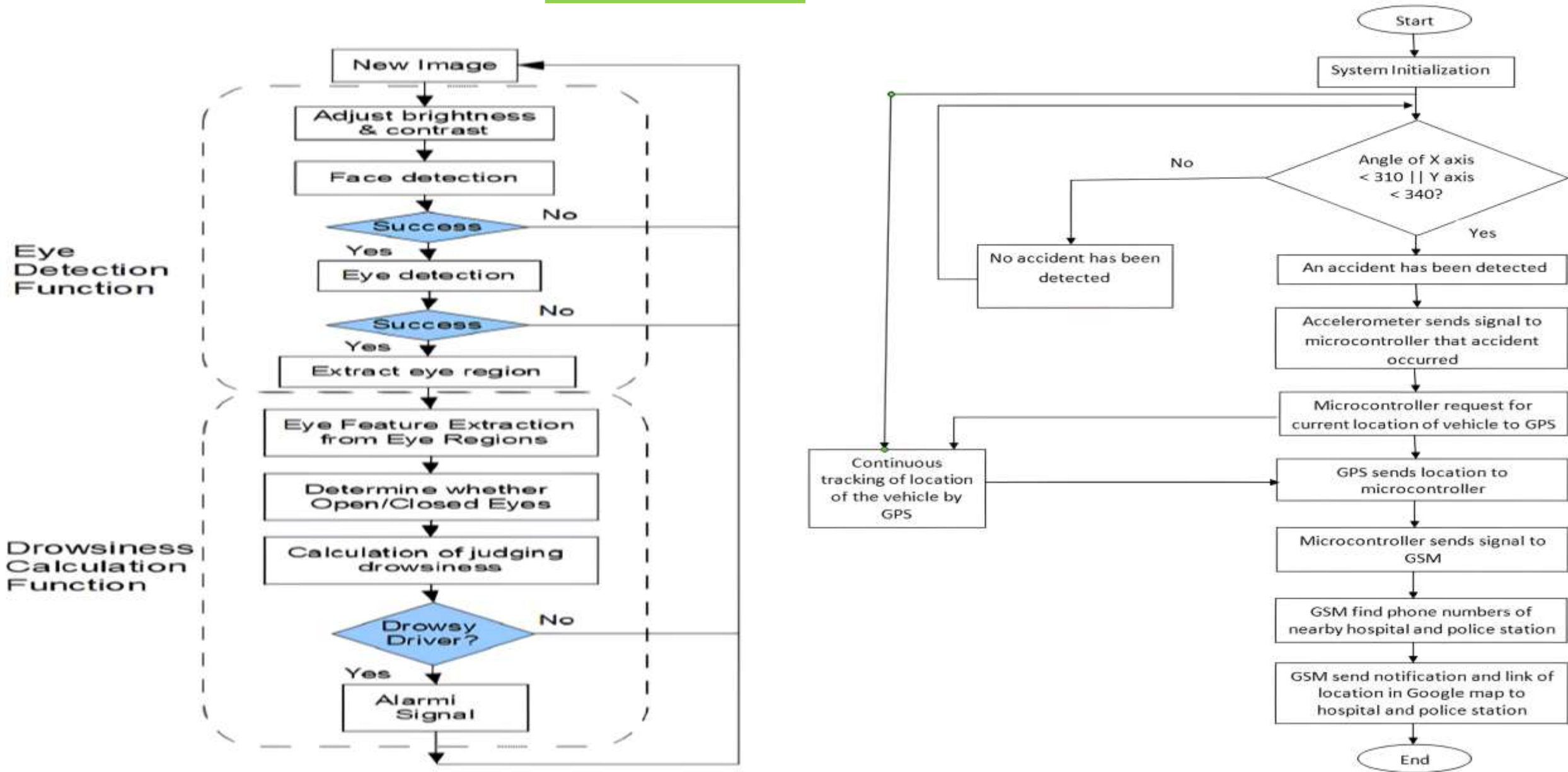
Describe your Dependencies / Show stopper here

- **With the help of ML we can detect the eye movement of the driver**
- **Based on the pre – defined value it will conform the driver drowsiness**
- **Here it depends on the accelerometer which detects the vibration created after accident and the axes**
- **It will track the nearby hospitals with the help of SOS**
- **With the help of GPS module it will send the live location of the accident to the nearby hospitals**

Objective

- **Integrate driver monitoring systems**: To detect signs of drowsiness, distraction, or impaired driving, and provide timely alerts to the driver to prevent potential
- **Auto Braking**: If it conforms the drowsiness then it will automatically slow down the car by auto braking
- **Accident Detection and Alerting**: Develop a system that can accurately detect accidents or collisions in real-time using advanced sensors and algorithms . Trigger immediate alerts to emergency services, nearby hospitals, and relevant authorities upon detecting an accident
- **Location Sharing**: Implement a mechanism to share the precise location of the accident with emergency services and nearby hospitals
- **Emergency Medical Response**: Facilitate swift communication between the accident site and nearby hospitals to ensure prompt and appropriate medical assistance to injured parties.

FLOW CHART



Real – Time Application

- **Real-time monitoring of driver behavior which includes eye movement**
- **Immediate detection of signs of drowsiness or distraction**
- **Automatically notifies emergency services with the vehicle's location and accident details.**
- **A GSM feature is there notify to the emergency services in case of accidents.**
- **Allows to share their real-time location with nearby hospitals**