**Accident Prevention and Detection System using IoT
Integrated in an Electric Pole**

**Objective:**

 The mainstay of the project is to design and develop a system is to prevent accidents occurring due to unaware of the vehicles approaching from other turns towards them, using IoT.

**Introduction:**

In today’s world, the technology has skyrocketed and has an impact on almost everyone’s life, so much that an average person starts a day after checking their phone, so why not use the same technology to save lives and prevent accidents? In hilly terrains and ghats, many vehicle accidents occur on ghats and as there is no one to monitor the situation and alert the officials, those victims often die. Also, the most common reason of these accidents is that the drivers are not aware of vehicle approaching towards them in those ghats. So, this problem can be overcome by using proposed system. In the proposed system when a vehicle comes from opposite direction and it may lead to accident so it providing the accident prevention before it’s occurring. An indicator lights up if it detects a moving vehicle coming from the other side of the road. And if the accident happens then in this, AI technology is used to detect accidents and send an email with the location of accident to IoT (traffic control main server). This will save so much time of the emergency services arrival that it can even save the victim’s life. The objective of proposed system is to implement an automatic system that could detect vehicles on the ghats and alert the drivers, and in case an accident happens, alert the emergency services as soon as possible. The system was very efficient for performing these tasks and was able to successfully do so using IoT technology

**Existing system:**

 Existing System uses GSM modem to send alert as SMS and Arduino as master controller. In recent days network provider doesn’t support for 2G communication, but existing system uses SIM800 which not capable of operating 4G SIM cards. Also, existing system takes accelerometer and limit switch values to detect the accident. These all are fixed with each vehicles, this is major disadvantage of this existing system

**Proposed system:**

 The proposed system is divided into three sections, namely Image Collection, Training, Live detection and sending/receiving data on our server. Using Maixdock for the vehicles detection ,accident detection ,fire detection and then servo motors is used to rotating camera and water nozzle, water pump is switching with help of relay board then IR sensors and led help to find vehicles detection.

**Hardware Requirements:**

* **Maixdock**
* **Esp 8266**
* **Servo motors-2**
* **IR sensors 2**
* **Led red 2**
* **Lcd display**
* **Relay board single**
* **Water pump**
* **Water tube and nozzle**
* **Adapter**
* **Electric pole setup material**

**Software Requirements:**

* **Arduino IDE**
* **Maixpy IDE**
* **K-flash**
* **language: c,c++,python**

**Block diagram:**

IoT Cloud

 LED display

 IR sensor

 ESP 8266

 Maixdock

 Ai camera

 Servo motors

 Nozzle

 Power supply board

 Relay board

 Water Pump

 LED lights