# Accident Safety in Foggy Region by Using PLC

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## ABSTRACT

According to the Ministry of Road Transport, in 2018, 1,51,417 road crashes recorded due to unfavourable weather conditions, especially fog, killing 28,533 people. Dense fog was also recorded in Bihar, Uttar Pradesh, West Bengal. Work presented in this paper focuses on developing a prototype hardware for prevention of accidents in foggy region using PLC automation. Ladder logic is developed to count number of vehicles passing through the foggy region and maintaining safe distance by providing alarming signals under abnormal whether conditions by using sensors. This methodology will be helpful for maintaining safe distance between the consecutive vehicles and to provide safe way overtaking the vehicles.

Keywords : Prevention of Accidents In Foggy Region, Plc Automation, Prototype Hardware

## I. INTRODUCTION

In this changing era of technologies which is been evolving day by day and getting more convenient to people, corresponding to it there are several climatic changes which always occurs in our environment. Technologies can't change climatic condition or weather condition. One of these hostile substitutes in environments is fog. Weather has massive and momentous effect on the roadway atmosphere. Technologies can't be castoff to halt the manifestation of the fog but with the assistance technologies it can avoid their hostile effects happening on our civilization.

It has stood high while then it was understood that road accidents are instantaneous consequences of the collective effects of behavioural, environmental factors. Safety peril is formed as vehicle management becomes difficult due to low perceptibility and reduction in road friction, as a result of weather conditions. Weather conditions like snow, mist, fog, etc. makes it difficult for drivers to run their vehicles cautiously, severely rise travel times, and significantly lessen roadway capacity.

About 85% of the accident related deaths happen in the most productive age group of 18-60. Road accidents deaths not only cause bitter trauma to the family of the victim but they also result in huge economic wound to the Nation. As per the Report on Road accidents in India 2018, the accident related deaths in India in 2018 were 1,51,417, especially fog killing 28,533 people.

In India on 2017-11-08 a video has gone viral on social media appealing to show a shocking smash on the Yamuna Expressway. The video displays the pile-up in action with more and more cars ramming into each other even as people stand on the side-lines

watching. Accidents are not a rarity on the expressway, on which cars can effortlessly travel at 200 kmph.

Vehicle speed tends to be high on straight roads in open areas which corroborates the high percentage of road accidents, persons killed and injured (varying in the range of 62-66%) on these roads in both 2017 & 2018. The largest increase in the number of accidents, those killed and those injured also took place in the Curved Road, Bridges and Straight road category.

Also, with the unfavourable atmospheric condition like fog risk gets multiplied, so an early warning system is been developed to get rid form fatal crashes. In this system a prototype from prevention of accidents in foggy region is being developed.
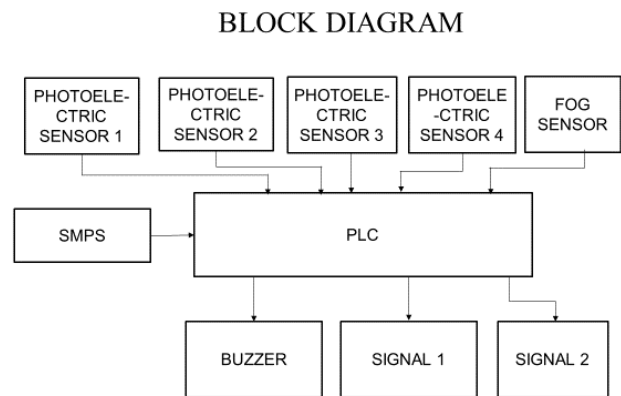




NECESSITY

· To eliminate accidents in foggy region.
· To control traffic in foggy region.
· To alert any hostile condition in foggy region.

OBEJCTIVE

To develop a safe transportation system during fog.

BLOCK DIAGRAM

BLOCK DIAGRAM



## II. WORKING

In this system four photoelectric sensors are been used to observe the arriving and departing of vehicle. The fog sensor is been used to detect the presence of fog in the atmosphere. Here two counters are been used first counter will count up the incoming vehicle another counter which is been at the departing end will count down the departing vehicle, counter comparator is used in the PLC so that we will uninterruptedly compare both of counters. In the mid region where dense fog is present and visibility is insignificant so to sense the motion of vehicle a motion sensor is also mounted to give single to PLC, if any vehicle is still in the foggy region the buzzer will go high and arriving vehicle will get alert. Signals are used at the entrance to indicate if it is red then

vehicle is inside the foggy region and if it is green then vehicle is not present in the foggy region.

## III. RESULT

An intelligent road safety system is being designed and developed to prevent accidents in foggy region. The system can be easily implemented in real life condition. As the system is been developed

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