Pedestrian Accident Rescue System

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Abstract: Today road accidents are rising at an alarming rate and 16% of the total number of road accidents involves pedestrian out of which ironically 20% of the accident takes place at the zebra crossing. The paper presents the idea of pedestrian accident rescue system which will help preventing accidents at pedestrian crossing, thickly pedestrian crowded area such as, school periphery and playground. First, a geophone will be deployed at the pedestrian accident prone area, which will convert the ground movement (caused by the pedestrians) into electrical voltage which is recorded and sent to the traffic system recording station. Second, the recording station is synchronized with the traffic lights nearest to the accident prone area, which will indicate a specific light say red, to make the driver aware of the fact of crowded pedestrian at the impending junction.

Keywords: Geophone, traffic system recording station, zebra crossing, accident prone area, sensor technology, rescue system, pedestrian accident.

1. Introduction

The paper focuses on providing a rescue system to the pedestrians on road and ensuring their safety. It involves the sensor technology (in this case, geophone) which helps in identification of areas which are at higher risks of accident such as schools, public parks and zebra crossings. Zebra crossing which was actually designed with the intention of safe traversal of pedestrian from one side of the road to another, are bringing the toll on humans due to carelessly reckless driving by the vehicle drivers. The integration of the sensor technology and traffic light management system serves as a platform to make the driver much informed and thus helps in regulating pedestrian accidents. It proposes an idea of reduced pedestrian accidents by application of the sensors in the traffic management system which will intern control the drivers’ action by means of traffic light signaling.

![Figure 1: Statistics of pedestrian accident (Data collected from the 15th ICTCT Workshop, speed related research and analysis).](image)

![Figure 2: The district-wise analysis of accidents with number of killings, serious injuries and number inhabitant per fatal or serious injury. (2001).](image)

2. Description

The whole rescue mechanism is divided in two finite steps:

2.1 Data Collection at Accident Prone Area

The sensor technology, involving the use of Geophones installed at accident prone areas will convert the ground movement caused by the pedestrians into electrical voltage. These electrical results are then passed onto the traffic system recording station of the city. The passage of the electrical signals from the geophone installation base (i.e., the accident prone area, say zebra crossing) is transmitted to the recording station by either by means of physical channel (small scale implementation) or by installation of a satellite (large scale implementation).
2.2 Data Delivery at the Traffic Control System

The data collected at the traffic system recording station is amalgamated with the traffic light system. The driver is informed about the presence of impending pedestrian crossing or densely crowded areas on his way by the blinking of the traffic signal light, say red. This will help him take an informed decision by giving him an estimate of the distance up to which he has to slow down his speed of vehicle in order to ensure accident prevention.

3. Conclusion

The paper presents a novel method of pedestrian accident rescue system using a rather economical technology of sensors and its integration with the traffic light system. It will help in reducing the number of pedestrian accidents on roads due to reckless driving, or sometimes due to the drivers’ ignorance about the pedestrian crossing the zebra crossing and the pedestrian crowded areas. The PARS will help preventing accidents by informing the driver at the nearest traffic signal about the presence of such areas.

4. Future Scope of Study

The paper encompasses a broader category of accident rescue of pedestrian at roads. It helps tackle the issue of higher death rates due to accidents which is rising at an alarming rate. The use of sensor technology, which is rather economical, will ensure the cost efficiency of the whole pedestrian accident rescue system. In nutshell, in practical scenario, it will revolutionize the road traffic management and accident prevention which would lead to lesser accidents and safer roads for a layman pedestrian.

References

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