

# ROAD BARRIER WITH GSM MODULED POWERED BY SOLAR ENERGY

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## INTRODUCTION

In recent years, major traffic accidents have occurred frequently, and casualties have been heavy. After the accident, personnel treatment has become a top priority. However, drivers and passengers often fail to report to themselves because of serious injuries, which will delay the rescue time and cause unnecessary casualties. How to timely discover traffic accidents and send the detailed location of the accident site to the rescuer is a technical problem that needs to be solved in the current traffic field.

Bad overtaking, If you've been driving for years and long- distance, you might have come to a point where you've seen road accidents due to bad overtaking or near-death situations because the driver overtaking almost collided with a bus or another car.

Drinking alcohol with friends, relatives, and co-workers is among the most common pastime and bonding moments of Filipinos; that maybe the reason it is one of the top causes of road-related accidents in the country. Alcoholic beverages are the so-called "downers", which means you will have a lower level of alertness and focus. Thus, if you plan on drinking, it is better to have someone to drive for you, commute, or at least limit your alcohol intake and take some time to drink water or coffee before you start driving. But of course, it is always best not to drink and then drive.

Exceeding the speed limit is also one of the common causes of road-related deaths and injuries in the Philippines. Not only is it because there are no designated officers to catch over-speeders, but also because some drivers are not really aware of

the standard Speed Limit Law Philippines.

Some drivers might also over speed because of the traffic issues in the Philippines. With the heavy traffic and long hours in the road, drivers become impatient and once they have the opportunity to drive destination on time, they do so. faster to reach their

This is a common scenario in the country because of failure to estimate the distance and time when overtaking. Again, some fail to give the right signal to the driver in front of them, as well as those at their back.

In view of this, we propose road barrier with GSM module powered by solar energy so that the system can promptly determine whether the accident occurred according to the posture information of the vehicle, and is determine to achieve a timely warning when the accident happened.

The research is directed to the above problems and aims to provide a road barrier for landslide and vehicle accident exact location emergency system and also preventing severe damage. In the event of an accident, it is convenient to automatically locate the location of the accident automatically send a distress message.

When the accident occurs, the vibration will sense and trigger the system and also positioning data is immediately acquired, and the rescue information is sent to the nearest respondent through the Global communication network and the relevant department receives the alarm and obtains the accident information through the text monitoring.

The police personnel (respondent) are timely According to the map automatically marked by means of google map to rescue the accident in time. When an accident occurs, it automatically Locates and sends accident information without manual intervention. The information is received and displayed in real time.

## **OBJECTIVES OF THE STUDY**

The research study aims to build a prominent road edge barrier to achieve the vehicle in the event of an accident SO that the victims will be rescued in the shortest possible time.

### **O GENERAL OBJECTIVE**

The main objectives of the study entitled "ROAD BARRIER WITH GSM MODULE POWERED BY SOLAR ENERGY" was to develop an emergency system/device that would able to send an emergency text messages and exact location of incident, rescue the involved person at the shortest possible time and also provide a light post placed in the accidents prone area.

### **O SPECIFIC OBJECTIVES**

1. To provide, innovate an improvised convenient emergency system.
2. To enhance the emergency system in event of an incident.
3. To respond to the incident in shortest possible of time.
4. To build an automatic street light powered by solar energy.
5. To provide barrier for vehicle to prevent falling to the deep ravine also to lessen the severity of an in

## **STATEMENT OF THE PROBLEM**

The following research question seeks for answer:

- 1.) What are the characteristic of the device/system?
  - 2.1 What improvement can be made out of the existing device/system?

3.1 What are the similarities and differences of the current proposed design?

4.) What is the assessment of the three groups of respondents in terms of the following criteria? Are there any significant differences?

a.) Functionality

b.) Usability

c.) Reliability

d.) Efficiency

e.) Maintainability

6. ) What claims system/device? can be derived from the developed

## **MATERIALS AND METHODS**

This chapter presents the UML methodology and sampling, statistical diagram, research treatment, data gathering procedures, time framework and analysis, supplies and materials, tools and equipment, technical specification of the study. cost analysis, and

## **RESEARCH METHODOLOGY AND SAMPLING**

### **Non-probability Sampling**

Non-probability sampling is a sampling technique where the odds of any members being selected for a sample cannot be calculated. It's the probability sampling, where you can calculate the odds. In addition, probability sampling involves random selection, while-non probability sampling does not-it relies researcher. on the subjective judgment of the

The odds do not have to be equal for a method to be considered as probability sampling. For example, one person could have a 10% chance of being selected and another person could have 50% chance of being selected. Its non-probability sampling when you can't calculate the odds at all. Plus, you can't calculate the confidence intervals and margins of error. This is the major reason why, if it all possible, a researcher first.

should consider probability sampling method

There are six different types of non-probability sampling method that can be used; Convenience sampling, Purposive sampling, Quota sampling, Dimension sampling, Voluntary sampling, and Snowball sampling.

The researchers used the purposive sampling method. A purposive sample is where a researcher selects a sample based on his knowledge about the study and population. The participants sample are selected based on the purpose of the

In this method of sampling, the choice of sample items depends exclusively on the judgment of the investigator. That is, the investigators exercise their judgment in the choice and includes those items in the sample.

#### **SUMMARY OF FINDINGS**

This chapter shows the findings resulting from this study

#### **SOP 1. Who is the beneficiary of this study/project?**

Our fellow motorist and emergency respondents are the primary beneficiary of this study. Mother nature will also benefit to this study/project because this is an eco-friendly device that use solar energy. Local government, pedestrian will also benefit because it has automatic street light so that they can walk safely on the late night evening.

#### **SOP 2. What sources of electricity are going to use?**

The main source of electricity of entitled study is from renewable energy source which is solar energy.

#### **SOP 3. What are the purpose of this study?**

The purpose of this study is to help our fellow motorist and emergency respondent to locate the said incident in shortest possible of time and also to provide automatic streetlight for pedestrian and motorist so that they

can walk and drive safely on the late night evening.

#### **SOP 4. What is the assessment of the three groups of respondents in terms of the following criteria? Are there any significant differences?**

The following criteria were being assessed by the three groups of respondents Professionals, students and community.

#### **CLAIMS AND CONCLUSION**

This chapter presents the claims and conclusion based on the data analyzed in the summary of findings.

This study has discussed the design and implementation of a Road Barrier with GSM module Powered by Solar Energy. The study is to develop for the emergency purposes.

This study was taken with the main objective to develop emergency system/device.

#### **CLAIMS**

1. A road barrier that can provide light and emergency purposes comprising: for

a GPS connection;

a GSM for mobile network;

a vibration sensor connection; and

a sunlight sensor for the switch of LED

2. A controller device connected to the said in claim

(1) an Arduino uno r3 board microcontroller.

Also including:

3. A 70AmpH 12v battery operated system

4. Solar energy as the main source of power.

5. A sunlight sensor as the main switch of LED

6. Interfacing of GPS (Global Positioning System), GSM (Global System for Mobile Communication network) and Piezoelectric sensor.

7. A 5volts operated dynamo for vibration machine.

7. Single receiver for constructed text message with and exact location of the device.

## CONCLUSION

Based on the findings of the study, the following conclusions are drawn:

A. According to the evaluation results of the functionality of the system, the degree to which the functional completeness, functional correctness, and functional appropriateness were rated as "Excellent" by the respondents. This implies that the functionality covered all the specified task and user objectives, provided correct results with the needed degree of precision, and facilitated the accomplishment of specified tasks and objectives.

B. According to the evaluation results of the usability of the system, the degree to which the operability and accessibility were rated as "Excellent" by respondents. This implies that the usability covered all the specified task and user objectives in terms of operability in which the system attributes to make it easier to operate and control and its accessibility in which the system can be used by people with the widest the range of characteristics and capability to achieve a specified context of use.

C. According to the evaluation results of the reliability of the system, the degree availability rated are to which the maturity and "Excellent" by the as correspondents. This implies that the reliability system met the needs for reliability under normal operation and that the system was operational and was accessible when required to be used.

D. According to the evaluation results of the efficiency of the system, the

degree to which the time behavior, resource utilization and capacity were rated as "Excellent" by the correspondents. It is understood that the efficiency of the system covered all the specified task and user objectives with an efficient response and processing rates when performing its functions, met the requirements with its efficient resource utilization when performing its functions and its efficiency of its capacity to meet the requirements to the maximum limits.

E. According to the evaluation results of the maintainability of the system, the degree to which the modularity, reusability and modifiability were rated as "Excellent" except for the reusability which received a "Highly Extent" rating from the group of Community. It is inferred that the maintainability of the system covered all the specified task and user objectives in terms of its modularity in which the system is composed of discrete components such that changes to one component impacts minimal components, its reusability to which an asset can be used in more than one system and its modifiability to which the system is effectively and efficiently modified without introducing defects or degrading existing system quality.