DESIGN AND ANALYSIS OF SMART INDICATION SYSTEM

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ABSTRACT

The major cause of road accidents are distractions and dementia (Forgetting or disremembering is the apparent loss or modification of information already encoded and stored in an individual's short or long-term memory). The objective of our project is to prevent Road accidents. In order to upgrade the two wheeler's indicators and prevent accidents, we have invented smart indicator system. The main objective of our project is to increase the functionality of the already existing two wheeler indicator. Nano, Sensor (Infrared) along with relay. The necessary equipment's of our project are Audrino nano, Infrared Sensor, Relay module, ESP32 cam Module etc,. Nowadays in indicator Buzzer sound is not available in two wheelers. Our project can be achieved by programming the necessary microcontrol unit through c++ programming language. In addition to that, in order to update the side mirror of the motor cycle. we have installed ESP32 camera module.

INTRODUCTION

The major cause of road accidents are distractions and dementia (Forgetting or disremembering is the apparent loss or modification of information already encoded and stored in an individual's short or long-term memory). In order to upgrade the two wheeler's indicators and prevent

accidents. We have invented smart indicator system. The main objective of our project is to increase the functionality of the already existing two wheeler indicator. Our project can be achieved by designing through fluidsim software with relay module.

SMART indicators, and the theory around using the SMART criteria to select what you measure has had a significant positive impact on the way the implementers think about the projects which they are doing.

By creating SMARTER KPIs, your organization will ensure that no safety indicator gets overlooked. Setting OSHA Compliant KPIs will lead to better safety management, fewer workplace injuries, and a team that is as excited as management is to enhance the overall safety precautions in the organization.

We just discussed what a SMARTER KPI is and why it's important. Now, let's take a look at some of the leading and lagging indicators there are when it comes to occupational safety.

WORKING PRINCIPLE

The objective of this circuit is to indicate left or right turn for bike/vehicle. The main component of this circuit is the infamous relay module.

The output of the relay module is given to LEFT indicator LED and the RIGHT Indicator LED using a Slide Switch.

The circuit works off a 9V PP3 (alkaline- type) battery and is basically a set of two independent free-running oscillators built around four low-power transistors and a few passive components.

As to cut off the power supply towards indicator we used relay input suppy as 10A 250VAC as in and vcc as out to indicator bulb.

The nano act as a controller which recieves and acts to relay once reciving input from infrared sensor.

The output of the relay module is given to LEFT indicator LED and the RIGHT Indicator LED using a Slide Switch.

PROJECT OUTLINE

The major scope of our project "Smart Indication System" is to make a difference in the indication system of two wheeoer and enhance its performance on the other hand the accident due to two wheeler should decreases.

The ultimate aim of Smart Indicator System is to upgrade the already existing indicator system in the two wheeler by using aurdino and infrared sensor. This innovation induces the decrease in road accidents occurs due to two wheeler.

As to cut off the power supply towards indicator we used relay input suppy as 10A 250VAC as in and vcc as out to indicator bulb.

The operation is not affected by sunlight or black material, although acoustically, soft materials like cloth can be difficult to detect.

LITERATURE SURVEY

K. Divakara Murthy et.al designs a semi automatic signal indicator for two wheeler. In this project, the authors presented a semi-automatic mechanism of indication of signal lights of a two wheeler. The system is used to prevent the accidents which may happened due to negligence of traffic rules, due to the laziness shown by the drivers at the time of turning on roads etc. The system is semi-automatic and incurs high cost. It is not fully automatic and also the navigation system is not established.

Zechun Huang et.al. developed a GPS vehicle positioning monitoring system which is integrated with CORS and mobile GIS. They design and implemented a method for vehicle direction, examination of vehicle position and control system and all are merged with CORS service network and Mobile GIS. The system also surveys the feature of spatial and attributes data associated with the vehicle positioning control.

Prawat Chaiprapa et.al. Proposed a Google map based website for a real time GPS vehicle tracking system. The authors developed a vehicle tracing methodology which utilizes a global positioning system (GPS) technology. The proposed module is used to collect the spot of the vehicle. Then the location information is forwarded into microcontroller. Then the microcontroller using Internet Connection and General Packet Radio Service (GPRS) displays the position of the vehicle in a real-time mode on the website map. Since the system uses both the Internet and GPS technology causes difficulty in low network area.

Dr. Khalifa et.al. design a vehicle tracking using web-based GPS-GPRS. The authors implemented a vehicle tracking system using web based GPS-GPRS technology. The process authorizes enterprises holders to examine the present and past locality of the intended vehicle on Google Map with the aid of recordings the current locality of the vehicle was acquired by GPS device which is integrated in the intended vehicle and the site coordinates are sent via GPRS service to GSM network.

Mahesh Kadibagil and Guruprasad H S developed a Position detection and tracking system for vehicle. The system consists of self-directed position recognition and tracking which capture the friends and family member's location with the help of GPS and standard web technology. This methodology consists of a web client, a repository, a mobile client and a map service. The mobile client is utilized to identify the location of family members or friends if they are coming around the user's area of directions then the mobile client convey a Popup SMS to user. These location particulars can be post to the server and the same particulars can be controlled and observed using the web client by other users.

Li Liu, et.al. implemented a navigation system which is android phone based group communication model. The authors developed a technology for navigation and group transmission system using Android

mobile operating system. The system supplies a friendly group communication policy between friends in order to promptly communicate and a real-time positioning, navigation and path planning capabilities with the help of GPS.

Kai Qin et.al designs an intelligent bus movement and station reporting system. In this system the location information is passed to the control centre which uses the GPS functionality. The hardware division of the system integrates voice chip also.

PROJECT METHODOLOGY

The objective of this circuit is to indicate left and right turn for bike/vehicle. The main component of this circuit is the infamous relay module and aurdino nano.

Here, this relay module acts as an Astable multi vibrator. It generates the pulse signal with variable width to indicator bulbs individually.

The relay module is an electrically operated switch that can be turned on or off deciding to let current flow through or not. They are designed to be controlled with low voltages like 3.3V like the ESP32, ESP8266, etc, or 5V like your Arduino.

The nano act as a controller which recieves and acts to relay once reciving input from infrared sensor.

The output of the relay module is given to LEFT indicator LED and the RIGHT Indicator LED using a infrared sensor as input given to aurdino nano.

WORKING METHODOLOGY

The major cause of road accidents are distractions and dementia (Forgetting or disremembering is the apparent loss or modification of information already encoded and stored in an individual's short or long-term memory).

In order to upgrade the two wheeler's indicators and prevent accidents. We have invented smart indicator system.

The main objective of our project is to increase the functionality of the already existing two wheeler indicator.

Our project can be achieved by designing through fluidsim software with relay module.

A methodology is defined as a system of practices, techniques, procedures, and rules used by those who work in a discipline.
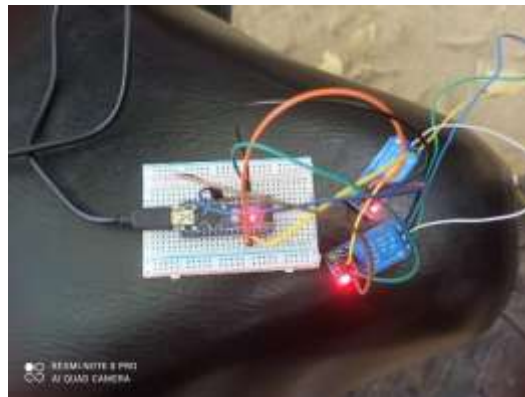

Fig-1

Fig-2

There is a growing interest over the last decades in the field of autonomous island grids that is driven mainly by climate reasons. The common objective among the members of the European Union (EU) is the increase of Renewable Energy Sources (RES) penetration in the energy mixture, as well as turning the grid into a smart grid. Consequently, more and more state-of-the-art solutions are being proposed for the electricity generation and the optimization of the energy system management, taking advantage of innovations in all energy related sectors. The evaluation of all available solutions requires quantitative assessment, through the adoption of representative Key Performance Indicators (KPIs) for the projects that are related to smart grid development in isolated energy systems, providing the relevant stakeholders with a useful comparison among the proposed solutions. The evaluation approach that is described in this paper emphasizes the role of the various stakeholder groups who face the proposed solutions by different points of view. Apart from the domains of interest that are also observed in previous approaches, the proposed list also contains a set of legal KPIs, since the regulatory framework can either represent a serious barrier or grant a strong incentive for the implementation of state-of-the-art energy technology and grid management solutions in different countries.

CODING

```
int sensor = 5;

int relay_1 = 6;

int relay_2 = 7;

int count = 0;

void setup() {
 // put your setup code here, to run once: pinMode(relay_1,OUTPUT); pinMode(relay_2,OUTPUT);
  pinMode(sensor,INPUT);
}

void loop() {

  // put your main code here, to runrepeatedly:
  if (digitalRead(sensor) == 0){ delay(3000); digitalWrite(relay_1,1);
    digitalWrite(relay_2,1);

  }else{

    digitalWrite(relay_1,0); digitalWrite(relay_2,0);
  }

}
```

CONCLUSION

In order to fulfill the objective of our project the installation and programming of the necessary equipment have done successfully. The microcontroller unit has been programmed using c++ programming language. The aurdino nano, infrared sensor, relay module is synchronously equipped in our project. The infrared sensor attached to the anterior position of the two wheeler. The sensor senses and detects the blocker which is located at the axle of the two wheeler. ESP cam module is installed at the tail of the two wheeler. This micro Control unit of ESP cam module is coded using c++ programming language. This ESP32 cam module displays the rear view of the motor cycle in the mobile which is located at the console of the two wheeler.

REFERENCE

[1] Divakara Murthy K , Harshitha V and Pedapudi Ashok 2017 Design of Semi- Automatic Signal Indicator For Two Wheeler International Journal of Current Engineering and Scientific Research 4(5)72-75.

[2] ZechunHuang , Dingfa Huang, Zhu Xu and Zhigen Xu 2011 GPS Vehicle Positioning Monitoring System Integrated with CORS and Mobile GIS International Conference of Environmental Science and Information Application Technology (Elsevier) 10 2498-2504.

[3] Yuan G, Zhang Z and ShangGuan W 2008 Research and Design of GIS in Vehicle Monitoring System InternationalConference on Internet Computing in Science and Engineering. 223-228.

[4] Khalifa A. Salim and Ibrahim Mohammed Idrees 2013 Design and Implementation of Web-Based GPS-GPRS Vehicle Tracking System International Journal of Computer Science & Engineering Technology 3(12) pp. 443- 448.

[5] Mahesh Kadibagil and Guruprasad H S 2014 Position Detection and Tracking System International Journal of Computer Science and Information Technology and Security 40 67- 73.