POLITEKNIK SULTAN SALAHUDDIN ABDUL AZIZ SHAH

FINAL YEAR PROJECT REPORT

CENTRE BOX

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ABSTRACT

In this paper, I implement the Center Box project, which is a modified front motor box with various efficient functions. Among them are the fact that I made this front box with a cover, a phone holder, the ability to use it as a mini toolbox, and the ability to charge devices. Using the concept of green technology from wind turbine, this box can charge gadgets or similar devices. This box charges and recharges itself using a wind turbine. Furthermore, because it is a portable box, this Center Box is versatile.

ABSTRAK

Dalam kertas kerja ini, saya melaksanakan projek Center Box, iaitu kotak motor hadapan yang diubah suai dengan pelbagai fungsi yang cekap. Antaranya ialah fakta bahawa saya membuat kotak hadapan ini dengan penutup, pemegang telefon,keupayaan untuk menggunakannya sebagai kotak alat mini, dan keupayaan untuk mengecas peranti. Menggunakan konsep hijau teknologi daripada kipas angin, kotak ini boleh mengecas gajet atau peranti yang serupa. Kotak ini mengenakan caj dan mengecas sendiri menggunakan kipas angin. Tambahan pula, kerana ia adalah kotak mudah alih, Kotak Pusat ini adalah serba boleh.

CHAPTER 1

1.1 INTRODUCTION

My project, centre box, is based on the concept of green technology. The term for green technology is dynamo. My project is based on the motor box used on the front of the motor, which I modified to be more efficient. I have added some functions that users can use. This box can charge the device with wind turbine electricity. It can also be recharged while travelling. This can help you save time when charging the box. In addition, I placed a phone holder on the box's top surface. It may make it easier for users to use their phone's GPS. At the same time, you can save money by not purchasing a foreign phone holder. Furthermore, this phone holder is stronger and of higher quality than those available on Shopee. The rider Food Panda, Food Grab, and others are among the users who frequently use this phone holder. Furthermore, I added a cover to the box, similar to a motor box at the back. This allows for more secure storage of items. It can also function as a mini toolbox. It has a special section for storing tools. This item is very useful for y users who like to walk a long distance if there is a minor problem with the motor, such as a broken chain. It can also save space because no bag or other toolbox is required to fill the tools. Furthermore, because it is a portable box, it is versatile and can be used or taken anywhere. Users can use this box not only on the motor but also on a daily basis.

1.2 PROBLEM STATEMENT

Many jobs now use motorcycle vehicles, such as Food Panda and Food Grab. Such jobs necessitate the use of GPS to determine the location of customers or stores to visit. As a result, they will need to purchase a phone holder to make it easier for them to use GPS. Phone holders that are commonly sold are weak and of poor quality, causing the phone to fall while riding a motorcycle. Furthermore, motorcyclists who are always in a convoy or travelling a long distance will frequently suffer minor damage or unexpected accidents. I'm on a motorcycle. This type of problem is easily solved with my product Center box, which includes a mini toolbox.

1.3 OBJECTIVE

The main project objective is to facilitate motorcyclists. To achieve this goal, the aims of the research project were identified as:

1. to add a phone holder so that it can use GPS in the phone
2. to be used as a mini toolbox
3. to incorporate a wind turbin in order to charge and recharge at the same time using green technology

1.4 SCOPE OF PROJECT

A project produced must have its own scope to show its capabilities compared to other projects. This project was developed to focused on motorcycle users, such as those who work on motorcycles or riders who always ride. Furthermore, my product is more adaptable because it is a portable box. This project is also suitable for use in daily activities, not necessarily only motorcycle riders can use it.

1.5 IMPORTANT OF RESEARCH

With the research that has been done from the internet and asking the opinion of the community, I found that this project can help to some extent for motorcycle users and can also be used for other purposes because this box is flexible. I also know that motorcycle users have several problems. Among them, the box space is small, the phone holder is not strong and so on.

CHAPTER 2

2.1 LITERATURE REVIEW

This chapter expands on the literature reviews that tailor the information to the project's objectives. The following information and additional features were gathered. The following literature was reviewed DYNAMO BASED CHARGING SYSTEM IN RURAL AREA, A TOOLBOX FOR CALCULATING MOTORCYCLE EMISSION AND THE DIFFERENCE OF CO2 FROM MOTORCYCLE FOR EACH TYPE OF ROAD IN HANOI and SMART TOOLLBOX.

2.1 DYNAMO BASED CHARGI NG SYSTEM IN RURAL AREA (1)

The objective for this project is design specification., To establish design the system to harvest power produced by dynamo, to design phone charging system, to implement dynamo power server, to implement and test the system. The problem statement is Many people living in rural areas in Tanzania uses the mobile phones for communication and other related services. Although the mobile phone plays vital role in the present communication, but most of the villagers do not have grid power. The absence of this power leads them to have no access of charging their mobile phone that lead to absence of continuous communication. Due to absence of power, villagers consume a lot of time going far from their home to charge their mobile phones. The component used is Dynamo, Controller, Power harvesting circuit, Regulator Battery charging system, Charging Controller, Display, Dynamo power Sarver Phone charging system Phone. The solution is The system aims to help rural people to charge their phones. The will minimize the cost and enable people to have continuous communication. In this project there are two existing systems. The first is charging by using generator and the second existing system is charging by solar. The existing systems are very expensive.

2.2 Smartooll Box[2]

The objective for this project is to detect the absence of the tools inside the toolbox.Then to to create a smart,convenience and efficient toolbox.After that,To help the user to identify which tool is missing through LCD screen that been install on the project.The problem satement is Nowadays, there are still many employment sectors out there that are still using and utilizing hand tools in their day to-day work despite the rapidly increasing technological advances. The tool itself refers to an object used to extend the ability of an individual to modify features of the surrounding environment. Hence, a toolbox was invented to protect, organized and carry the tool inside it. Although, there a lot of innovation and improvement on the existing toolbox, yet the missing tool was still being one of the biggest issues for the toolbox owner. Not to mention that if the owner wouldn't be able to find their tool, then not only they can't proceed they work but they also must buy the.new one. Plus, the missing tool can be hazardous for those who didn't aware of the present of the missing tool.
Moreover, it is a part of human nature to naturally forget something. Forgetfulness is part of adult life for many reasons, including being preoccupied, under stress, fatigue or possibly health issues like depression, hypothyroidism or worse, dementia.The method that they use are Embedding LDR Sensor > Main Circuit

Installation > Adruino Programming > Solderring.The compenent is (1)LED Super Bright(2)Arduino UNO (3)LCD screen display(4) HJ-C02B Toolbox(5) Arduino jumper wire (6) 9V battery(7) 9V battery holder (8) Prototyping Board 9) Resistor (10) Rocker Switch (11) EVA Foam .The solution is It will solve the ‘forget’ issues among user,To be user friendly and safe to use,.Convenience for the consumer.

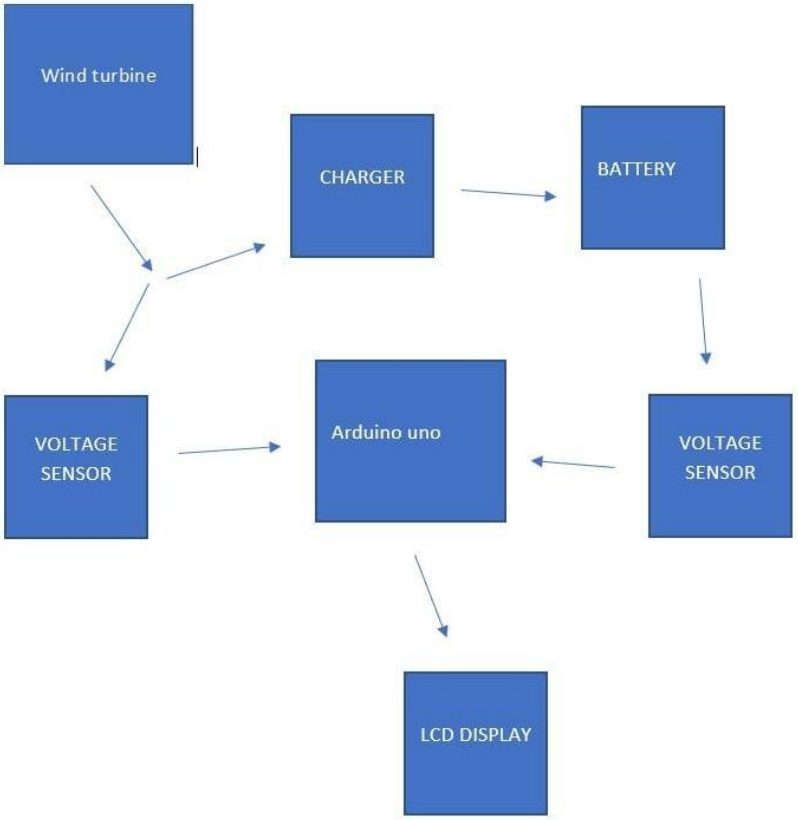
2.3 A Toolbox for Calculating Motorcyc le Emission and the Difference of CO2 from Motorcycle for Each Type of Road in Hanoi [3]

The objective fot this project is to easily calculate motorcycle emission based on an improved method. and to extract all information about trips by using MATLAB (Graphical user interface).The problem statement is Number of motorcycle in Hanoi increase year by year, it lead to various problems especially pollution. How to calculated motorcycle emission which can be reflex road condition and individual behavior become very necessary. With major aim to develop toolbox can calculate motorcycle emission which can be reflex current situation in Hanoi, The relationship of motorcycle emission and power will be applied. By using global position system (GPS) data to calculate power, toolbox can be automatic clean error, cut trips and calculated motorcycle emission by each trip. On the other hand, by dividing trips for each type of road in Hanoi, this research also has comparisons the difference of motorcycle speed, CO2 emission and also the impact of peak hour on each type of road. This studies tents to make some analysis for people deeply understanding the current situation of motorcycle emission in Hanoi.The solution is analysis, activity – base analysis, environment, and so on. This dissertation deals with the issue of environmental problems with a focus on how to calculate and reduce the motorcycle emissions based on GPS information. To simplify all of the processes in calculating the emissions from motorcycles, a toolbox with calculating program was designed. This toolbox uses GPS data which was collected from motorcycle usage activities as input information into the program for calculating precisely the amount of emissions as well as each type of emissions such as CO, CO2, HC, NOx, etc. The calculation process contains three steps: cleaning the GPS data, automatically identifying trip(s) and calculating emissions by using the MATLAB program. Moreover, all results could be represented not only as figures but also asExcel files (which may re-used as input for other programming processes). The toolbox was used to examine motorcycles' emissions in different travelling conditions such as different types of roads (i.e., on residential (branches) roads, on main roads and on highways) and different types of areas (i.e., CBD (Central Business District), non CBD and rural areas). The result shows that in urban area, the CO2 emission factor from motorcycle has higher than rural area. It can explain that in urban area the congestion level is higher than rural area. In addition, the results suggest that those who live within the CBD and drive motorcycles in peak hours should chose residential roads to save their travel time as well as to reduce the motorcycle's emissions factor.

CHAPTER 3

3.1 METHODOLOGY

This project uses green technology that is dynamo to generate electricity on the box. The way it works is that when the motorcycle moves it will produce kinetic energy then the dynamo will convert kinetic energy into electricity. Next it will be channeled to the box and also at the same time it can charge the battery along the way. This can facilitate the user and thus save user time.



HARDWARE

1. ARDUINO UNO R3

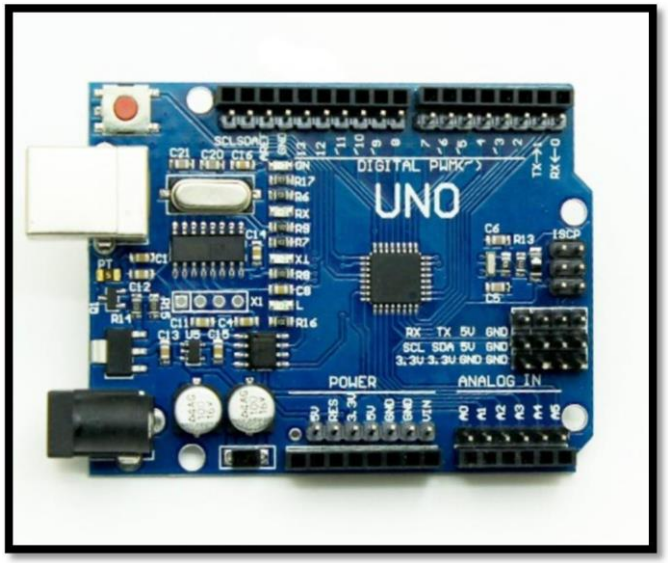


FIGURE 3.1 : Arduino Uno R3

Arduino Uno as in Figure 3.1, is a microcontroller board based on the ATmega328P (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button.

2. VOLTAGE SENSOR

FIGURE 3.2 : VOLTAGE SENSOR

Voltage sensors are wireless tools that can be attached to any number of assets, machinery or equipment. They provide 24/7 monitoring, constantly watching for voltage data that could indicate a problem. Low voltage may signal a potential issue, while other assets may be in danger when voltage is too high.

3. CHARGING PORT

FIGURE 3.3 : CHARGING PORT

Charging port means any charging connector that is able to charge an electric vehicle, regardless of plug type or standard. To charge the existing battery.

4. WIND TURBINE

FIGURE 3.4 :WIND TURBINE

A wind turbine is a device that converts the kinetic energy of wind into electrical energy. Used as a power supply that is using kinetic energy to electrical energy.

5. BATEERY

FIGURE 3.5 : <u>BATTEY</u>

An electric battery is a source of electric power consisting of one or more electrochemical cells with external connections] for powering electrical devices. used as a power supply as well

6. LCD DISPLAY

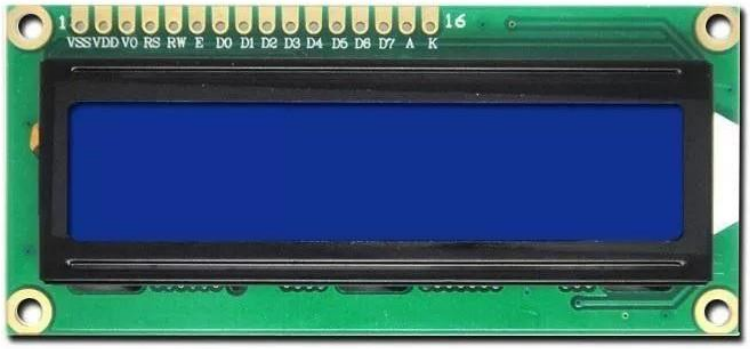


FIGURE 3.5 : LCD DISPLAY

LCD (Liquid Crystal Display) is a type of flat panel display which uses liquid crystals in its primary form of operation. LEDs have a large and varying set of use cases for consumers and businesses, as they can be commonly found in smartphones, televisions, computer monitors and instrument panels. To show the output or input detected by the voltage sensor.

7. PHONE HOLDER

FIGURE 3.6 :PHONE HOLDER

Phone stands are small objects used to prop up your mobile device. They are designed to sit on a hard surface, like a table or desk, so you can watch funny videos, scroll through pics, and ultimately, keep your phone clean and safe. To used to place the phone when using GPS .

8. BOX

FIGURE 3.7 :BOX

Used for a casing box that aims to fill items and also used as a mini toolbox. It is also a portable motor BOX

CODING

VoltageDisplay | Arduino 1.8.19

File Edit Sketch Tools Help

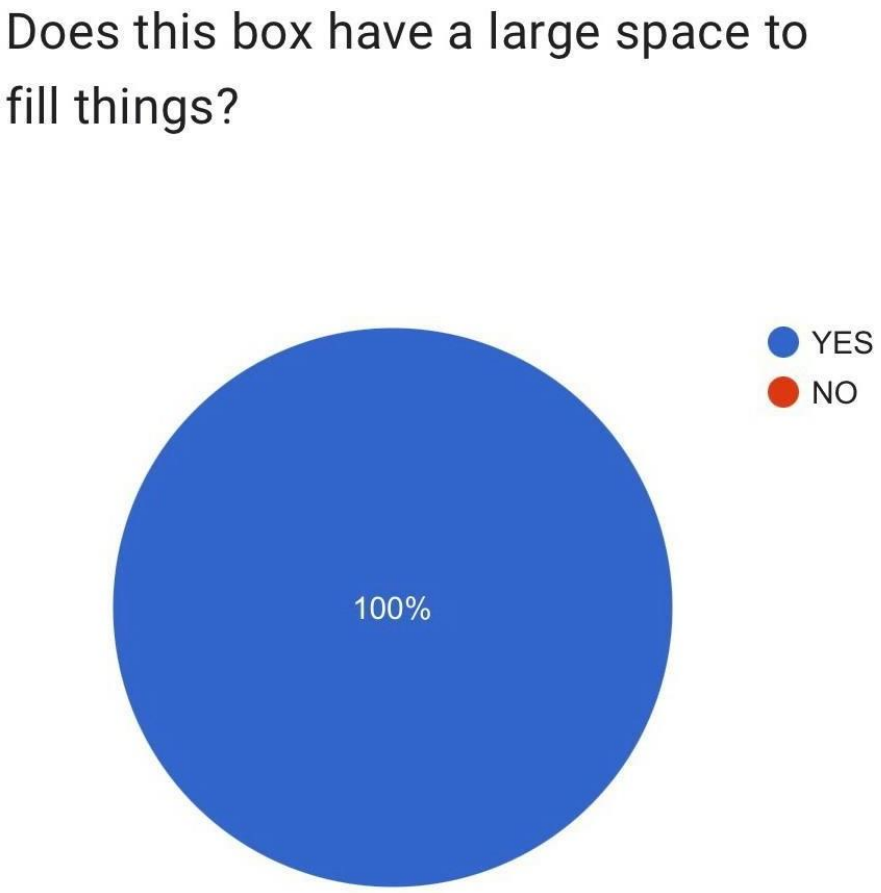
VoltageDisplay

```
#include <SoftwareSerial.h>
#include <Wire.h>  // Comes with Arduino IDE
#include <LiquidCrystal_I2C.h>


SoftwareSerial ss(2, 3);
LiquidCrystal_I2C lcd(0x27, 16, 2);
#define LDRX 10
#define LEDx 6
#define Buzz 11

float Amp=0;
int TWifi=0;
float WIND,Wind,Windx,LDR;
float WINDx=0;
float Sens1;
float Sens2;
float Sens3;
float Batx=0;
float Voltage,Bat,VB;
int Sens1Pin = 0;
int Sens2Pin = 1;
int Sens3Pin = 3;
int MODE=0;//auto
float Percentage=0;

float PWM=0;
float PWMx=0;


void setup() {
  pinMode(Buzz,OUTPUT);
   pinMode(LDRX,INPUT);
```

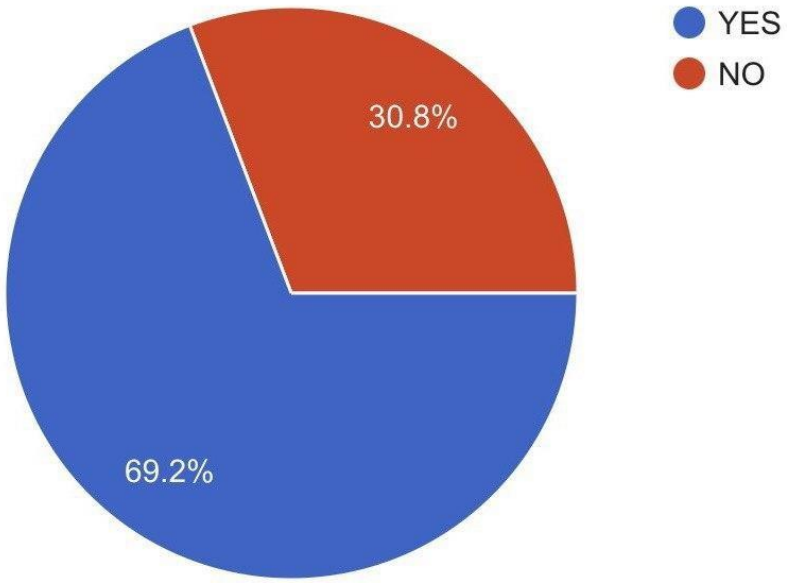
CHAPTER 4

INTRODUCTION

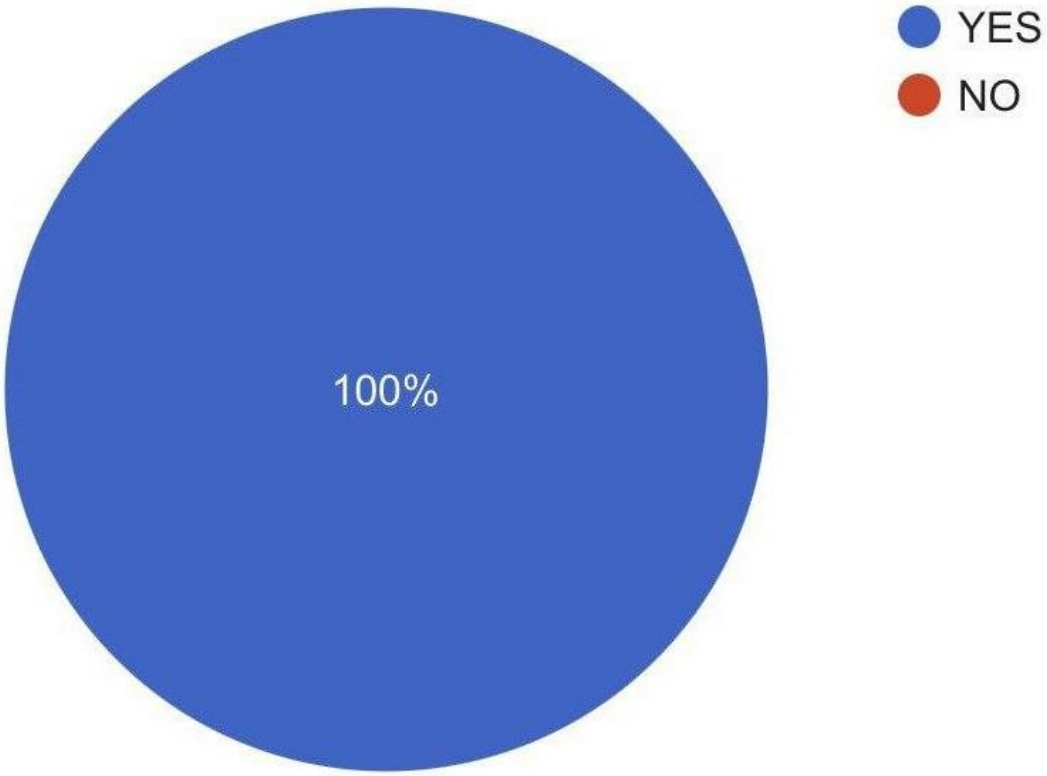
This subject chapter covers the analysis done for the conclusions and findings of the project. This CENTER BOX has been tested to identify whether the product is in good condition or not. In addition, I have distributed a questionnaire analysis to get feedback from users.



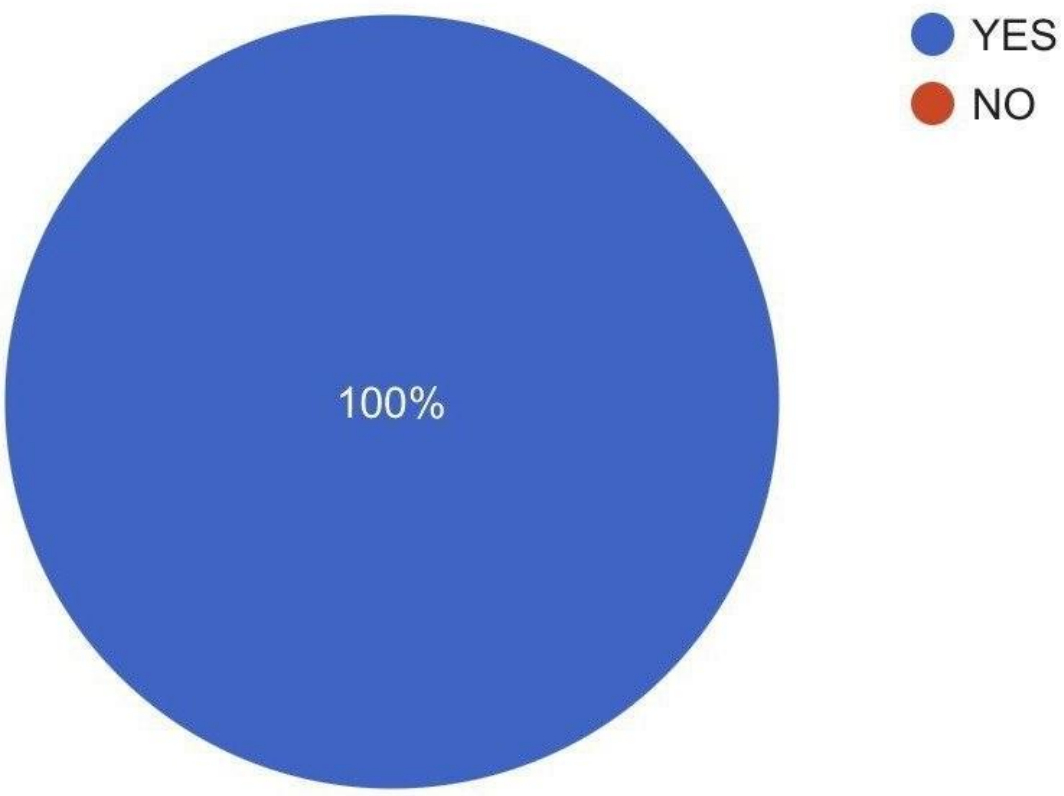
Does the use of wind turbine as a power supply bother you when riding?



Is this box durable?



Does adding a phone holder to the box help you?



Does this project have the potential to be marketed in the market? Give your rating for this Portable Center Box.

yes

Yes

9/10

Yes I give rating five

10/10

It does. 8/10

Maybe

Yes , 8/10

CHAPTER 5

CONCLUSION

Finally, this project has the potential to benefit a large number of people, particularly those who ride motorcycles. Furthermore, this project has the potential to provide many interesting functions for motorcyclists. Among the benefits of this project are the ability to charge all devices, as well as serve as a phone holder and mini box. Finally, I learned a lot about circuits, which helped me become more innovative. I hope that this project can assist many people with their daily needs.

REFFERENCES

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