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FOREWORD BY DR. NURBAITI WAHID KPP PKE UITMCTKD

Alhamdulillah, all praise to Almighty Allah who made this possible for the editorial team to complete this publication. The Extended Abstracts of Final Year Projects from UiTM Terengganu Electrical Engineering Diploma students have been published since 2018 and e-ISSN was obtained from Perpustakaan Negara Malaysia in 2019. This year, 2021 witnesses the upgrade of this publication through collaboration with Jabatan Kejuruteraan Elektrik (JKE), Politeknik Sultan Mizan Zainal Abidin (PSMZA). We are very honored to work alongside JKE, PSMZA and we hope that this collaboration can be continued in the future. I would also like to thank and extend my gratitude to the management for approving this project and to all editorial team, as well as the contributing authors for this issue. Hopefully, this publication could benefit all the readers.

FOREWORD BY MR. SAIFUL AZIZI ABDULLAH KJ JKE PSMZA

Alhamdulillah, all praises to Allah, for the successful publication of the Extended Abstracts of Final Year Projects in collaboration with UiTM Terengganu Electrical Engineering and the Department of Electrical Engineering (JKE), Politeknik Sultan Mizan Zainal Abidin, Dungun, Terengganu has finally been realised. I congratulate UiTM Terengganu and the JKE PSMZA editorial team, as well as all parties engaged in this publication. The final projects created by electrical engineering diploma students are featured in this publication which will hopefully serve as beneficial resource for all students, particularly those studying electrical engineering, while they work on their final project. Thank you.

Extended Abstracts of Final Year Projects

Volume 7

ULTRASONIC HEIGHT MEASURE

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Abstract - A Human height is a major factor for self -health monitoring and many methods have been done to measure these physiological parameters accurately and comfortably. Various problems and complaints from many parties such as. It is difficult to measure height on your own because you need help from others or need to go to a place that has a height measuring machine and no display of accurate reading value indicator when measuring height. So we created a device, called Ultrasonic Height Measure that uses arduino to measure human height using a contactless approach. It is an inexpensive and efficient tool for estimating human height measurement using an ultrasonic sensor, HC-SR04. This sensor provides good measurement at close range up to a distance of 300 cm. In addition, this device is also equipped with a 16x2 LCD display to make it easier for users to see their height more easily. However, this device has a maximum measurement limit of up to 180cm only. , Having made a study by making the design of the tool serves to provide altitude information to humans using arduino. It can be concluded that the ultrasonic sensor is suitable for use as a human height measurement sensor because based on the test results the fault value of the ultrasonic sensor is not too far.

Keywords - Height, measure, arduino, ultrasonic.

INTRODUCTION

It is difficult to measure your own height, so we need help from someone to look at the meter scale. As example if we want to monitor the child's growth by measuring height but do not get a fast and accurate reading because the child has difficulty standing properly during the measuring process. This project is to build a device that can measure body height using an arduino uno. An ultrasonic sensor was used to produce this project to detect and measure height. This sensor has a maximum limit of up to 180 centimeters only. The device is also equipped with a display using a 16x2 LCD to display high reading values in centimeters.

METHODOLOGY

The project is a combination of hardware and software by using Arduino uno, lcd i2c, ultrasonic sensor, buzzer. The use of Arduino software is an idea to launch a program into an Arduino. Figure 1 and Figure 2 shows the block diagram and schematic diagram for the project.

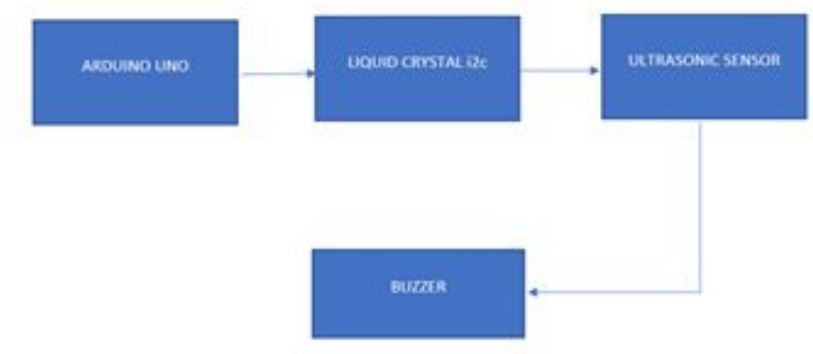

Figure 1: Block Diagram Ultrasonic Height Measure

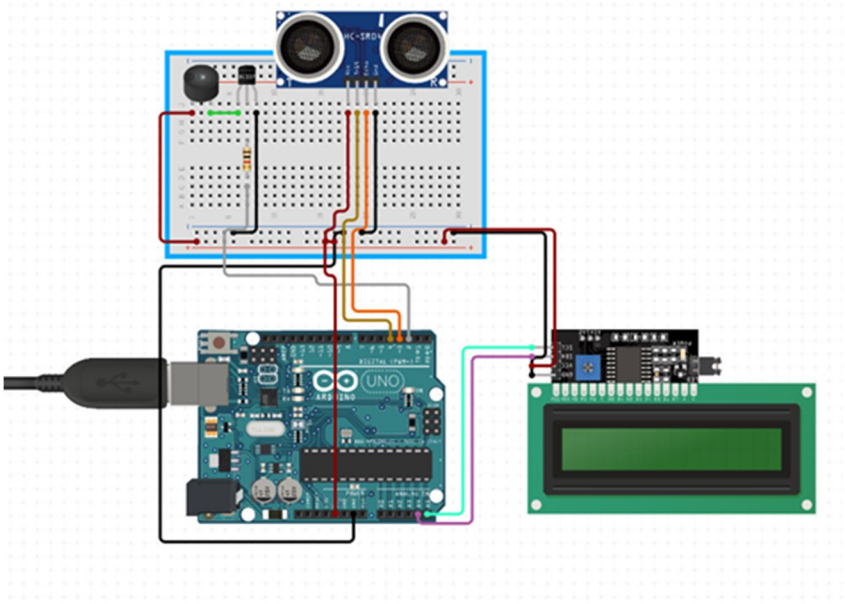

Figure 2: Schematic diagram for Ultrasonic Height Measure

The Arduino Uno R3 is a microcontroller board based on the removable dual-inline-package AVm ATmega328 microcontroller. It has 20 digital input / output pins (of which 6 can be used as PWM outputs and 6 can be used as analog inputs). The program can be downloaded from an easy -to -use Arduino computer program. Arduino has an extensive support community, which makes it a very easy way to start working with embedded electronics. The R3 is the third revision, and the latest from the Arduino Uno. The i2c LCD used in the device to display the v height. The VCC pin on the LCD is connected to a 5 V voltage source supplied from a 5V arduino pin. Then the GND pin on the LCD is connected to the Arduino GND pin. Then the SCL pin on the LCD is connected to the Arduino A5 pin and then the SDA pin on the LCD is connected to the Arduino A4 pin. The HC-SR04 type ultrasonic distance sensor uses ultrasonic wave technology to determine the distance of an object in front of it. The HC-SR04 type ultrasonic distance sensor offers a detection distance from 2cm to 400 cm. The function of the HC-SR04 type ultrasonic distance sensor is not affected by sunlight or the color of the object to be detected as in the infrared light-based sensor. This sensor comes with an ultrasonic wave transmitter and a wave receiver module. A buzzer works if the buzzer or beep device is a sound signal device, [1], that converts electrical waves into high -frequency sound waves via mechanical, electromechanical, or piezoelectric. Common uses of buzzers and beep devices include as alarm devices, timers and user input validation such as for mouse clicks or key pressed. Buzzers are low power and require low current is at 100cm and above.

RESULT AND DISCUSSION

By using arduino IDE software programming is successfully done by uploading on Arduino to control ultrasonic sensor detects altitude distance, lcd display also works and lights up to display altitude distance in centimeter units Programming is written in Arduino C language and compiled in Arduino IDE software.

CONCLUSIONS

As a conclusion we can say that the ultrasonic sensor is suitable for use as a human height measurement sensor because based on the test results the error value of the ultrasonic sensor is still within the limit of ± 5%.

REFERENCES

[1] S. Erwan, "Investigation on Flux Characteristics of Field Exicitation Flux Switching Machine with Single FEC Polarity," *Procedia Technology 8C,* pp. 561-567, 2013.

[2] D. Martin and W. D. Rik, "Comparison of Outer and Inner Rotor Switched Reluctance Machines," *IEEE PEDS,* 2007.

[3] J.King, "The King Review of low carbon cars of low carbon cars-Part II: recommendations for action," March 2008. [Online]. Available: www.hm-treasury.gov.uk/king.

[4] S. Niku, Introduction to Robotics: Analysis, Control Application 2nd Edition, 280: John Wiley & Sons, Inc, 2011.

[5] Fahmizal. 2013. Kelebihan arduino. https://fahmizaleeits.wordpress.com/tag/kelebihan-arduino/. Santoso, Hari. 2015. Cara Kerja Sensor Ultrasonik, Rangkaian, & Aplikasinya. http://www.elangsakti.com/2015/05/sensor-ultrasonik.html Anonim. 2012. LCD (Liquid Cristal Display) http://elektronika- dasar.web.id/teori- elektronika/lcd-liquid-cristal-display/.

IOT URBAN FARMING

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Abstract - Agriculture plays a vital role in our daily life. It does so because it provides food resources. It's also critical that we maintain our position in productive agriculture. Agriculture has the potential to feed the entire world's population. Despite basic agricultural processes, we are confronted with internal agricultural issues such as harsh environment, rising global warming, and the environmental impact of intensive farming practices, which has increased demand for food production. As a result, this IOT Urban Farming was developed so that we could deal with extreme weather while still being able to plant in a limited space. This IOT Urban farming means we can use this project even to plant in indoor space. The Arduino Wemos D1 is a key component in this project. In addition, two types of sensors are used to monitor soil moisture and temperature: soil moisture and temperature sensors. UV lights are used to replace sunlight during the photosynthesis process. This will ensure that the plant receives all of the nutrients it requires and that it can be maintained because the plants are well-cared for.

Keywords - IOT, urban farming.

INTRODUCTION

Farming is essential to our way of life. Farming can provide food for all living things [1]. Smart farming incorporates IOT into farming to increase crop yield and production efficiency while also reducing the use of pesticides, fertilizers, and water. Farmers can gain better control over their livestock and fields by using IoT [2]. Nowadays, most people love to cultivate. However, there are some constraints such as limited area and time. With the latest and modern technology, this problem can be overcome. This is because by creating technology such as IoT that can control a change remotely without requiring a lot of energy. For example, sensors in the soil can be used for real-time monitoring of soil quality using remote soil monitoring. These sensors provide farmers with up-to-date information like on soil humidity and temperature. Sensors provide centimeter-level accuracy in soil information. Farmers use these methods to complete the planting process by using urban farming methods that can be used indoors to overcome planting challenges. So plant can be save from extreme weather.

METHODOLOGY

IOT Urban Farming System is designed for monitoring the crops fields using WiFi with the help of sensors (soil moisture, temperature and humidity sensors). Farmers can monitor field conditions from any location. IOT Urban Farming is highly efficient when compared with the conventional approach and no need human workforce to monitored [3][4]. Method undertaken to design the hardware is from studies with reference internet sources and discussion with my supervisor. The diagram below shows the flowchart of the methodology used to prepare the system.

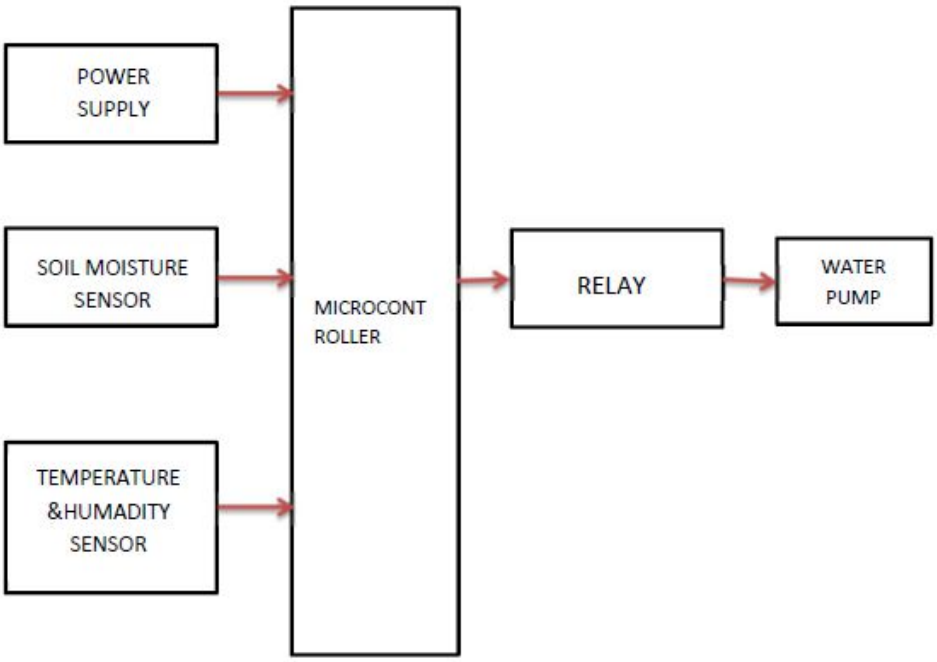

Figure 1: Block diagram of IOT Urban Farming

RESULT AND DISCUSSION

Figure 2 show the overall hardware that used in this project. In this project the input is soil moisture sensor. It will detect the humidity of the soil. The Arduino Wemos will be the processor. If the soil is dry, the sensor will detect and will on the relay to trigger the water pump. Then, the water pump will be watering the plant. The results of humidity, temperature and soil moisture will be display on the Blynk applications

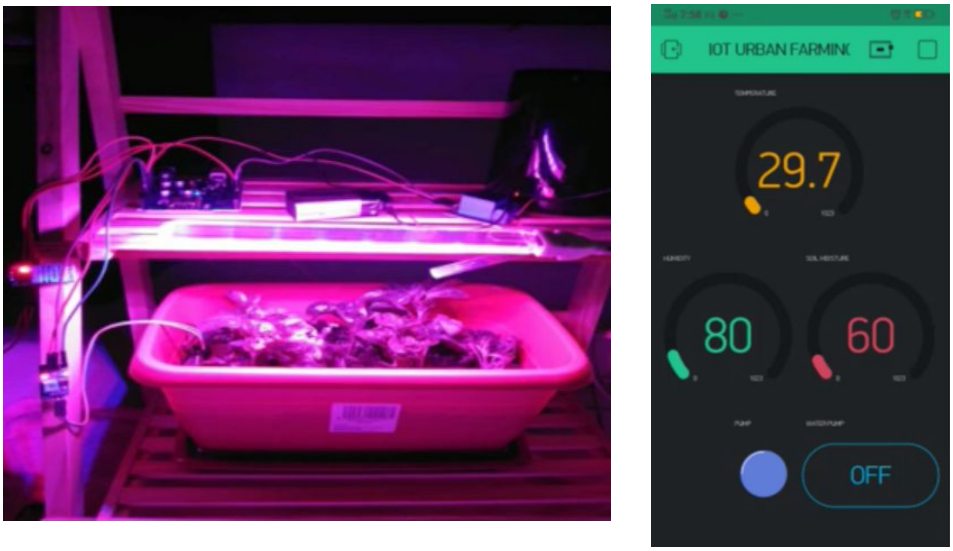

Figure 2: Overall IOT Urban Farming

CONCLUSIONS

In conclusion, this project is successful when all the objectives is accomplished at the end of the research and monitoring control plants has successfully been developed. Furthermore, the IOT Urban Farming has potential for commercialization because it using low cost and reliable system.

REFERENCES

[1] Bryan, Njoroge & Thang, Ka Fei & Thiruchelvam, Vinesh. (2019). An Urban Based Smart IOT Farming System. IOP Conference Series: Earth and Environmental Science. 268. 012038. 10.1088/1755-1315/268/1/012038. J. Clerk Maxwell, A Treatise on Electricity and Magnetism, 3rd ed., vol. 2. Oxford: Clarendon, 1892, pp.68-73.

[2] Oh, Am. (2020). Smart urban farming service model with IoT based open platform. Indonesian Journal of Electrical Engineering and Computer Science. 20. 320. 10.11591/ijeecs.v20.i1.pp320-328. K. Elissa, “Title of paper if known,” unpublished.

[3] Setiawan, Yodi & Tanudjaja, Harlianto & Octaviani, Sandra. (2019). Penggunaan Internet of Things (IoT) untuk Pemantauan dan Pengendalian Sistem Hidroponik. TESLA: Jurnal Teknik Elektro. 20. 175. 10.24912/tesla.v20i2.2994.

[4] FlyingEagle. 2016. Penjelasan dan Cara Kerja Konsep Internet of Things, (http:// www.mobnasesemka.com/ internet-of-things/, diakses 21 Maret Aulia, M. S. 2017.

MOBILE MOP

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Abstract - Mobile mop is an innovation and improvement project from an ordinary mop that became a motorized mop to make floor cleaning easily, less manpower. As an improvement from the existing product, the operation of the mobile mop using RF remote control sends a signal from transmitter to receiver. Arduino Uno as a processor for this project to handle input and output where RF remote control as an input while motor, water pump and fan as the output. The project was equipped with two motors at two tyres for forward, reverse, left and right direction. These changes may reduce some of the manpower burden to push and pull the mop, especially for elderly people. Mobile mop is also included with a water pump and a fan to make floor cleaning more efficient. This innovative product is cost effective because mop pads are washable. This project is an eco-friendly product because the main body of this product made from wood and mop pads can be recycled many times.

Keywords - Mop, mobile, RF remote control, Arduino

INTRODUCTION

Malaysia is currently ranked 68th from 180 country in terms of cleanliness among the countries of the world based on 'The 2020 Environmental Performance Index (EPI) [1]. A clean environment is very important especially in public institutions. Most of the cleaning work is done by cleaning workers such as landscape and indoor building worker. The clean environment benefits students, lecturers and workers at IPTAs to increase productivity [2]. Nevertheless, these cleansing works still require human labor and self-awareness. Usually cleaning workers consist of aged workers. Sometimes they have health problems due to age factors. The problem occurs when cleaners need to consume a lot of energy to clean the floor and it takes a long time to clean areas such toilet and office floor. Therefore, a wheeled mop using remote control was designed to overcome the problems occurred. This mobile mop equipped with water pump to dispense water and fan to speed up the drying process. However, drawback of this project is that the drying of the mop should be manually dried. There is a 1-meter limit of the distance between the sender and the receiver of the remote control and the distance of the floor mop capable of moving only within the range distance 200 meters. In addition, the appliance needs to be on flat surface without obstruction in front of the mop to work the floor. Uneven flooring causes the floor to not be cleaned properly.

METHODOLOGY

Basically, the Mobile Mop project has three main parts as shown in Figure 1. The block diagram shows input, process and output part. The input part consists of a Radio Frequency (RF) remote and an RF receiver with transmitting signal up to 100 feet [2]. While the Arduino UNO is used to process the signal from the RF remote to be sent to the output side. The output part consists of the two relay circuits to control water pump and fan as well as the driver motor for moving.

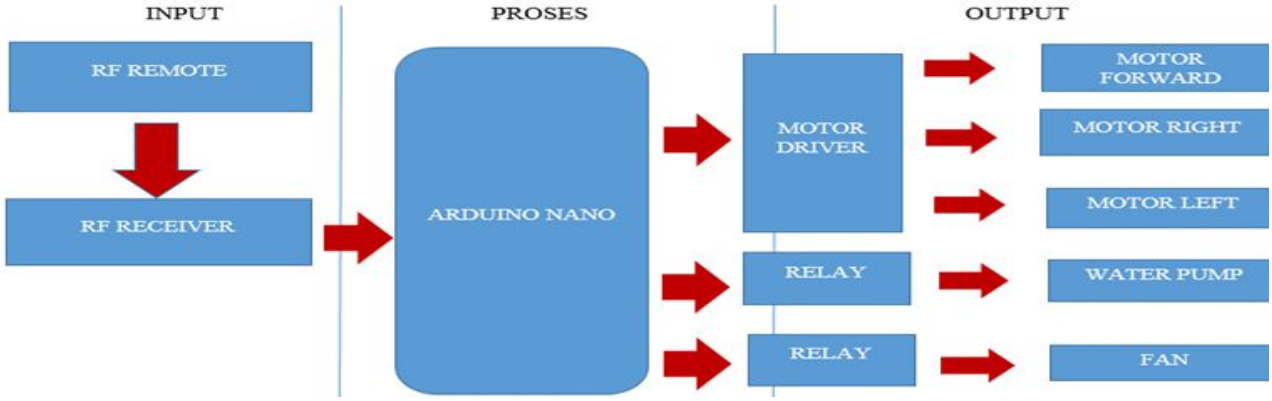

Figure 1: Block diagram of Mobile Mop Project

RESULT AND DISCUSSION

Figure 2 shows the front and rear view of the final result of the Mobile Mop product. The front has a drain to spray water while mopping. While the back has a fan that is used to dry the water. There are four buttons on RF remote control. Button A controlls fan switch and forward reverse of the motor to move the mop wheel. Button B to rotate the mop wheel to right meanwhile button C to rotate the mop to the left. Button D uses to switch water pump either turn On or OFF.

Figure 2: Front(left) and rear(right) view of Mobile Mop

CONCLUSIONS

As a conclusion, this project is successful with all objectives are achieved. The Mobile Mop can move forward, rotate left and right to help the cleaner clean the floor. During cleaning, it can switch on and off the fan and water pump to assist the cleaning process. Furthermore, the Mobile Mop has potential for commercialization because it uses a low cost and reliable system. For future improvement, design a tool for this project that can use plastic material to make it more heavy duty and use other wireless transmission remote such Bluetooth or Wi Fi.

REFERENCES

[1] Environment Performance Index (EPI) report 2020 https://epi.yale.edu/downloads/epi2020report20200911.pdf

[2] M. Harrevorts, J. V. Ophem, & P. Terpstra, "Impact of Cleanliness on The Productvity of Employess" Emerald Publishing Limited. August 2018. https://www.researchgate.net/publication/327022122_Impact_of_cleanliness_on_the_productivity_of_employees

[3] J.Layton, "HowRemote Controls Works". February 2021. https://electronics.howstuffworks.com/remote-control3.htm

AUTO RELOAD MOSQUITO MAT (AR2M)

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Abstract - This project is to innovate a tool for every household that has a problem with mosquitoes roaming the house which is called the AUTO RELOAD MOSQUITO MAT (AR2M). Many types of mosquito repellents have been created for this problem and one of the types of mosquito repellents created is the electronic sheet mosquito repellent that we chose for our project. Therefore, we innovate such electronic devices from manual to automatic functions. This tool will automatically change the pieces at a predetermined time. The project focuses on a timer set to turn on the heater as well as will turn on an Arduino circuit that will instruct the stepper motor to rotate by 90 degrees to change and remove pieces of mosquito repellent [1],[2],[3]. With the creation of this tool, it can make it easier for users not to have to make changes every day and can overcome the problem of mosquito repellent pieces that are littered everywhere. We have also created a new design for this gadget to keep users interested in the sophisticated looking design. In addition, we have made preliminary planning in terms of component selection, circuits, and costs to implement this project.

Keywords - Arduino, Auto Reload Mosquito Mat, stepper motor

INTRODUCTION

Nowadays, most of household are preferring using an electronic mosquito repellent rather than mosquito net. Therefore this project focus on a few innovations to make an electronic mosquito repellent more friendly. Usually the process to change of mosquito repellent is done manually every day once we are going to sleep. Normally a heater will heated a piece a six or seven hours before it is switch off manually. Here we have made an innovation to the electronic device by innovating from manual to automatic functions. This electronic device should be placed in a higher place to prevent this device from children because it has a heating function that heats the mosquito repellent while it is operating. This factor can provide more safety in a use of this device.

METHODOLOGY

AR2M is designed using a timer set to turn on the process of heating. After a few hours of heating (set up by user), a stepper motor will turn on to spin 90 degrees to change and remove pieces of mosquito repellent into dustbin as show in Figure 1.

Figure 1: A flowchart the operation of AR2M

RESULT AND DICUSSION

In this project, no need to reload a new mat manually as Figure 2. Instead, once AR2M is switch on, this innovation project will reload and heat automatically every day at a predetermined time. Then a stepper motor will move a mat from heater to dustbin and the buzzer will be buzz once a dustbin is full.

Figure 2: A manual reload mosquito heater (left) and Automatic Reload Mosquito Mat (right)

CONCLUSIONS

In conclusion, this project is successfully function to automatically reload a mosquito repellent mat. AR2M is good for every family to have it because it can save a time to reload a mat. As a future recommendation for improvement, a rotation of motor can be control using Bluetooth and a buzzer can be change to GSM to send a signal to user.

REFERENCES

[1] Shailesh J. Parmar, Ishita S. Thaker, Mital S. Zala "Design and Development of Stepper Motor Position Control using Arduino Mega 2560", IJSTE - International Journal of Science Technology & Engineering | Volume 3 | Issue 09 | March 2017 ISSN (online): 2349-784X

[2] M. Mutava and P. Kamweru, "Arduino Uno, Ultrasonic Sensor HC-SR04 Motion Detector with Display of Distance in the LCD," International Journal of Engineering and Technical Reserach, vol 5, issue 05, pp. 936 - 942, May 2020

[3] Amir Mohammad Shojaei, "Interfacing 28BYJ-48 Stepper Motor with Arduino", 2019. [Online]. Available:https://electropeak.com/learn/interfacing-28byj-48-4-phase-stepper-motor-5v-dc-with-arduino/

SMART STICK WITH SENSOR DETECTION

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Abstract - Smart Stick With Sensor Detection is a stick for ease blind people to go around without guardians and will not getting hurt. It is embedded with several sensors to sense any obstacles and water around them while they are walking. The sensors used in the Smart Stick are ultrasonic sensor and water sensor. The Smart Stick uses WEMOS D1R1 as controller and powered by 5V power supply. The circuit will be mounted on the Smart Stick. When the Smart Stick detects obstacles, the buzzer will be on while it detects water, the vibration motor will vibrate to alert the user.

Keywords - Blind stick, WEMOS D1R1, ultrasonic sensor, water sensor, GPS sensor.

INTRODUCTION

Blind people's lives are difficult and hard since they cannot see what is in front of them, and they can be hit by any object, even humans, resulting in injury. Furthermore, blind people have difficulty maintaining daily activities, and many issues arise when they go from one location to another. Because the types of jobs they can do are limited, they have a lower percentage of employment. For mobility and financial support, they rely on their families. The most important is obstacle detection while they are walking. Due to their inability to see, they are frequently struck by roadside objects such as poles, walls, cars, and people, resulting in serious injuries. Smart Stick With Sensor Detection is modified by a normal blind stick with length 120 cm. It can fold and become length 30cm. The ultrasonic can measure the distance 2cm to 80 cm and the measuring angle covered is less than 15^0. While the width of water sensor detection is 40 mm x 16mm. The Smart Stick is a stick for ease blind people to go around without guardians and will not get hurt. It is embedded with several sensors to sense any obstacles and water around them while they are walking.

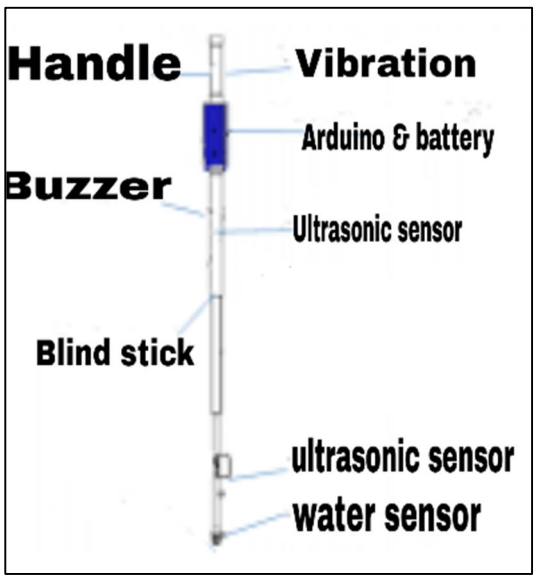

Figure 1: Smart Stick with Sensor Detection Design

METHODOLOGY

The Smart Stick with Sensor Detection is used a normal blind stick. The circuit for controlling Smart Stick had been mounted on the blind man's stick and use power bank as power supply. Smart Stick is use 2 ultrasonic sensors and 1 water sensor as input, and buzzer and vibration motor as output. Following the data collection, calculations are made using the formula: Distance= (timer speed of sound) /2. After that, the signal is sent to a microcontroller, which controls a buzzer. It uses WEMOS D1R1 as controller. Arduino is used as software for programming coding.

RESULT AND DISCUSSION

When the power is ON, the ultrasonic sensor and water sensor will be initialized. The range for ultrasonic sensor was set for 0 - 30 cm distance measurement. When the ultrasonic sensor detects some obstacle around the blind person, the buzzer will sound, and user will stop walking and turn away from the obstacle. While the water sensor detect water around the blind person, the vibration motor will vibrate for 5 second to alert the blind person. Therefore, blind people can walk like normal people without getting hurt.

CONCLUSIONS

Smart Stick With Sensor Detection was created because there is currently no initiative for blind people to make them feel safe when walking outside without their guardians. Most blind people rely on a walking stick to get around. With Smart Stick with Sensor Detection, blind people want to move around more safety. By using ultrasonic Sensor to detect obstacles and buzzers to give alert may help blind people feel more safety when they move around. Some improvement can be made on the Smart Stick such as adding GPS sensor, so that blind people's family can detect blind people's location easily. It is preferable to have an emergency button on the stick to alert the guardian if they are needed or become separated.

REFERENCES

[1] Helal A., Moore S. E., and Ramachandran B., "Drishti: An Integrated Navigation System for the Visually Impaired and Disabled," International Symposium on Wearable Computers, Zurich, Switzerland, 249-256, 2002

[2] Nahar, V. V., Nikam, J. L., & Deore, P. K. (2016). Smart Blind Walking Stick. International Journal of Modern Trends in Engineering and Research.

[3] Johann B., Iwan U., "The Guide Cane — A Computerized Travel Aid for the Active Guidance of Blind Pedestrians" Proceedings of the IEEE International Conference on Robotics and Automation, Albuquerque, NM, 2283-2288, 2997.

AUTOMATIC PARKING SYSTEM

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Abstract - An attraction has been research in the field of vehicle sophistication as well as parking facilities. Drivers can find a parking space quickly and safely big props to automatic parking technology. In fact, it can also provide comfort and reduce the incidence of parking lot accidents. This automatic parking system was created to way it functions automatic car parking problems: Parking methods that are inefficient, unsystematic control of the number of car entries, and slow car parking detection There are three important factors to consider because once trying to correct an automatic parking system based on parking lot issues: Parking area identification, parking sketch planning, and empty parking detection control.

Keywords **-** Automatic parking system,

INTRODUCTION

We presented the automatic parking system method in the car parking system project. The brilliance of the technology used is used to judge the world's modernity; we have created a parking system that can work by displaying the number of cars in the parking lot and instant notification the entrance. Using the interface, we can also set the maximum number of cars in the parking area. We used a microcontroller that can detect car movement as well as look at the number of cars entering, regardless of whether the parking space is empty or not. If there are cars entering the parking lot, the display of the total number of vehicles will decrease, and the door will close if the car exits the parking lot. Infrared transmitters and receivers are used to detect car entry and exit. At the entrance, the infrared transmitter and receiver are installed in opposite directions. When a car drives through the entrance, the infrared is blocked, and the receiver will not receive the infrared ray, and its solution to different. A microcontroller will control the number display, so the number of parking spaces will increase, and the door will open if there is empty parking. Exits follow the same procedure.

METHODOLOGY

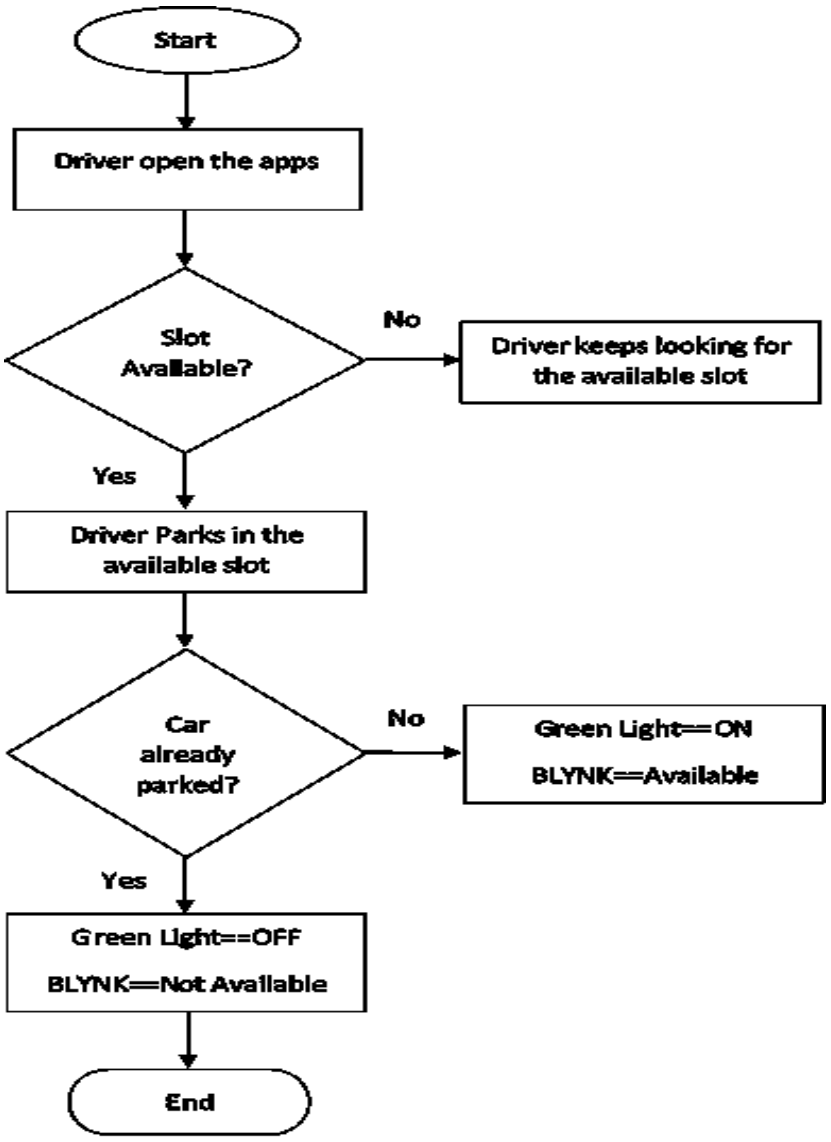

Figure 1: Automatic Parking System Methodology

RESULT AND DISCUSSION

Figure 2 shows the connection of the automatic parking system, connection Arduino Wemos IR Sensor and Servo motor. Arduino Wemos D1, configuration and programming of the main server. IR sensor, detection the car during the entry and exit. Servo motor, Entry /exit gates.

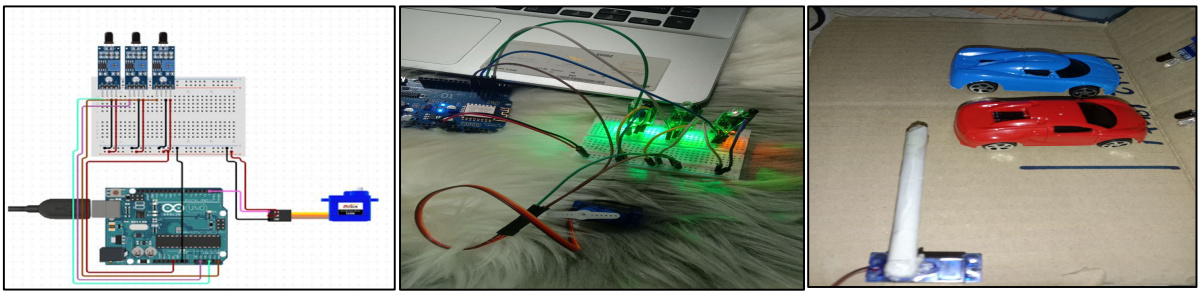

Figure 2: Schematic circuit (left), Mechanical design (middle), Prototype (right)

CONCLUSIONS

There have been different types of automatic parking systems introduced. There are several examples of automatic parking systems that have been used; however, the increasing number of vehicles, especially in cities, will cause a parking shortage. This system can make the best use of available parking. The most important aspect of this parking system is survey into the use of sensor technology in vehicle detection, and even an analysis of the positives and negatives of sensors can be performed. While there are some disadvantages to trying to implement a visual system to detect vehicles, the systems that have been built have many advantages.

REFERENCES

[1] Srinivasan, “Smart vehicles with everything”, 2nd IEEE international conference on contemporary computing and informatics (ICCCI), 04 May, 2017.
[2] Shih chia, “smart car”, IEEE computational intelligence magazine, volume:11, issue:4, nov-2016
[3] Alamgir hossan, “a smart system for driver’s fatigue detection, remote notification and semi-automatic parking of vehicles to prevent road accidents”, IEEE International conference on medical engineering, health informatics and technology (ICMEDITEC), 30th Jan, 2017.
[4] Adnan bin faiz, “Smart vehicle accident detection and alarming system using a smart phone”, 1st IEEE International conference on computer and information engineering(ICCIE), on 04 Feb, 2016.