



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

**MICROCONTROLLER BASED COMMUNICATION AID
SYSTEM FOR DISABLED PEOPLE**

This report submitted in accordance with requirement of the
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for
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by

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DECLARATION

I hereby, declared this report entitled “Microcontroller Based Communication Aid System For Disabled People” is the results of my own research except as cited in references.

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Date : 8 DISEMBER 2016

APPROVAL

This report is submitted to the Faculty of Engineering Technology of UTeM as a partial fulfillment of the requirements for the degree of Bachelor in Electronic Engineering Technology (Telecommunication) with (Hons.). The member of the supervisory is as follow:

.....
(Pn. Norain bt Rahim)

ABSTRAK

Takrif upaya adalah keadaan fizikal atau mental yang menghadkan pergerakan, deria, atau aktiviti seseorang. Jenis ketidakupayaan termasuk pelbagai kecacatan fizikal dan mental yang boleh menghalang atau mengurangkan keupayaan seseorang untuk menjalankan hari ke aktiviti hari. Kecacatan ini boleh disebut sebagai kecacatan untuk melakukan aktiviti seharian. Tambahan pula, kebanyakan mereka dibiarkan sahaja dan tidak mempunyai pembantu. Jadi, keperluan orang kurang upaya harus diberi perhatian serius. Teknologi Bluetooth sebagai medium komunikasi dan Arduino Uno adalah sebagai perkakasan yang melaksanakan sistem pemanggil yang lebih cepat melalui komunikasi Bluetooth. Projek ini menangani isu yang merupakan peranti yang mengaitkan individu dan membantu individu kurang upaya yang tidak mempunyai kaki dan tangan apabila mereka berada dalam keadaan risiko atau memerlukan sesuatu untuk dibantu. Keputusan menunjukkan bahawa perkakasan dan perisian tersebut berjaya berfungsi dan dapat digunakan sebagai sistem pemanggil pintar. Projek ini juga menyediakan kemudahan kepada pengguna terutama bagi kecacatan orang yang memerlukan bantuan kerana ia lebih sistematik, lebih kompleks dan menjimatkan masa. Tambahan pula, untuk sasaran masa depan, dengan menggunakan paparan skrin sentuh dan memampatkan peranti kepada peranti lebih padat adalah disyorkan kerana pada masa kini menuntut untuk berinteraksi generasi lumpuh yang tidak mempunyai kaki atau tangan untuk menggunakan sistem ini.

ABSTRACT

The meaning of disabilities is a physical or mental condition that constrains a man's developments, detects, or exercises. Sorts of disabilities incorporate different physical and mental impedances that can hamper or decrease a man's capacity to do his everyday exercises. These impedances can be named as inability of the individual to do his or her everyday exercises. Also, the greater parts of them are allowed to sit unbothered and did not have a partner. In this way, the requirements of inabilities individual should to be considered important. Bluetooth innovation as the correspondence medium and Arduino Uno as the equipment which executes quicker guest framework by means of Bluetooth correspondence. This task handled the issue which is a device that partner people and helps incapacitated people who does not have leg and hand when they are in hazard or needs something to help to. Result demonstrates that the equipment and programming are effectively utilitarian and ready to be utilized as a practicality guest framework. This task is additionally gives accommodation to the client particularly for inability individual who needs assistance since it is more orderly, more intricate and spare time. Moreover, for the future target, utilizing touch screen show and pack the gadget to more reduced gadget are prescribed as the these days request to generation who incapacitate which does not have leg or hand for utilizing this framework.

DEDICATION

This report is dedicated to Puan Norain Binti Rahim for without her initial motivation, practicing and excitement, none of this would have happened. This dedicated is particularly committed to my folks. For my beloved mom and dad, Gustia binti Waseli and Ab Aziz Bin Jaafar for their continuous love and support. Besides that, they additionally showed me to confide in Allah and have confidence in diligent work. I likewise dedicate this response to my family who consistently strengthen me with their unlimited love that spurs me to set a higher focus in finishing this last year extends. This commitment is likewise committed to my adored companions that have furnished me with a solid love shield and consistently embrace me and never gives any pity a chance to enter inside.

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TABLE OF CONTENT

Declaration	i
Approval	ii
Abstrak	iii
Abstract	iv
Dedication	v
Acknowledgement	vi
Table of Content	vii
List of Tables	viii
List of Figure	viii
List of Abbreviations, Symbols and Nomenclatures	viii
CHAPTER 1: INTRODUCTION	1
1.0 Introduction	1
1.1 Problem Statement	2
1.2 Project Objectives	2
1.3 Project Scope	3
1.4 Organisation of Thesis	4-5
CHAPTER 2: LITERATURE REVIEW	6
2.0 Introduction	6
2.1 Previous Project Related	6
2.1.1 Wireless Table Waiter Service Call Calling Paging System Restaurant Table Button Caller Table Ordering Set K-303+K-300plus+K-H3	6-8
2.1.2 Smart Ordering System via Bluetooth	9-10
2.1.3 Wireless Two-way Restaurant Ordering System via Touch Screen	11
2.2 Hardware Overview	12
2.2.1 Arduino Uno	12-13
2.2.2 Arduino Mega	14

2.2.3	Bluetooth Module Master/ Slave	15-17
2.3	Software Overview	18
2.3.1	Bluetooth Serial Controller	18-20
CHAPTER 3: METHODOLOGY		21
3.0	Introduction	21
3.1	Planning	21
3.1.1	Collections Data	22
3.2	Flowchart of Process Implementation Project from the Beginning until Completed	23
3.3	Overall Project Development	24
3.3.1	Project Briefing	25
3.3.2	Selection of Project Title	25
3.3.3	Verified of Title Project	26
3.3.4	Observing equipments and component	26
3.3.5	Software Observing	26
3.3.6	Software Installing (PC)	27
3.3.7	Flows diagram and creation note	27
3.4	Design	28
3.4.1	Block Diagram of Microcontroller based Communication Aid System for Disable People	28
3.4.2	Flowchart of Process in Microcontroller based Communication Aid System for Disable People.	29

CHAPTER 4: RESULT AND DISCUSSION	31
4.0 Introduction	31
4.1 Analysis Statement	31-32
4.2 Improvement of Project Software	33
4.3 Bluetooth Serial Controller Interface	34
4.4 Manual User	35
4.4.1 Method	35
4.5 Prototype	36
4.6 Curcuit Of Project	37
4.7 Analysis of Record	38
4.7.1 Comparison Statistics	39
4.8 Results Measurement	40-42
4.9 Discussion	43-44
CHAPTER 5: CONCLUSION & FUTURE WORK	45
5.0 Introduction	45
5.1 Conclusion	45-46
5.2 Recommendation	46-47
REFERENCES	48-49
APPENDICES	50
A Coding	51-53
B Gantt Chart	54

LIST OF TABLES

2.1	Features of Arduino Uno	13
4.1	Comparison between Wireleses	39
4.2	Signal Strength for Bluetooth	41

LIST OF FIGURES

1.1	Block Diagram Process of Project	3
2.1	K-H3 Call Button	6
2.2	K-300plus-Black watches for waiter use	7
2.3	Display Receivers K-303	7
2.4	The system manual of the device I	8
2.5	The system manual of device II	8
2.6	Arduino Uno	12
2.7	Arduino Uno Pin Description	13
2.8	Arduino Mega	14
2.9	Bluetooth HC05 interfacing with ATmega328	15
2.10	Bluetooth module HC-05	15
2.11	The Bluetooth Serial Controller Interface	18
2.12	The Button Size Interface	19
2.13	The user interface	19
2.14	The command interface	20
3.1	Major steps in Methodology	21
3.2	Flowchart of Process Implementation Project	23
3.3	Overall Project Development	24
3.4	Block Diagram of Microcontroller based Communication Aid System for Disable People	28
3.5	Flowchart of Process in Microcontroller based Communication Aid System for Disable People	29
4.1	IDE Software Interface	33
4.2	Interface displayed	34
4.3	How to use The Microcontroller Based Communication Aid System for Disable People	35
4.4	Prototype of project	36
4.5	Circuit Of Microcontroller Based Communication Aid System For Disable People	37
4.6	Bluetooth Signal Measuring	40

LIST OF ABBREVIATIONS, SYMBOLS AND NOMENCLATURE

COM	-	Communication port
CPU	-	Central Processing Unit
ECG	-	Electrocardiography
GPS	-	Global Positioning System
IDE	-	Integrated Development Environment
LCD	-	Liquid Crystal Display
MATLAB	-	Matrix Laboratory
SMS	-	Short Message Service

CHAPTER 1

INTRODUCTION

1.0 Introduction

There are 445,006 people with disabilities registered in Malaysia as of 2012. The meaning of handicaps is a physical or mental condition that confines a man's developments, detects, or exercises. Sorts of handicaps incorporate different physical and mental debilitations that can hamper or lessen a man's capacity to complete his everyday exercises. These hindrances can be named as inability of the individual to do his or her everyday exercises. Most of them are left alone and did not have an assistant. The needs of disabilities person should be taken seriously. So, the project aims to help them to communicate easily with others if they want to ask for helps.

“Microcontroller based communication Aid System for Disabled People” is a device that connecting people and helps disabled people who does not have leg and hand when they are in danger or needs something to help to. This project is also provides convenience to the user especially for disability person who needs help because it is more systematic, more complex and save time. Moreover, this project is created to help the user who wants a better life and up to date. The concepts of this project are eco-friendly and simple. Besides that, it will make a person’s life easier between the disabled people and the assistants.

In addition, the “Microcontroller based Communication Aid System for Disabled People” is a devices that the disabled people can send signals from Android which is a mobile phone and the Arduino from the assistants will receive the signals via Bluetooth and automatically speaker will acts as an output.

1.1 Problem Statement

The people that have disabilities are requiring assistance and protection to enhance their quality of life to become independent. Besides that, many of them are live alone so it is not easy to ask for helps. The common manual methods lead to problem such as a waste time because the entire manpower to ensure order tills the guards. The guard cannot do a work that would be completed in addition to caring for patients. Moreover, this method is not systematic and not practical over time now. Then, to complete a project, the various problems faced by the student as well as the project that are doing. Among the problems that were face are as follows by seeking the necessary ingredients whereas the electronic equipment used for Arduino installation. While these application have turned out to be beneficial, the business sector still stays open for use in bigger group place such healing facility, home or even school.

1.2 Project Objectives

This proposal project “Microcontroller based communication Aid System for Disabled People” was produced consuming the most elevated advancements to give more accommodation to the consumer. Rather, there are a few goals as takes after:

- 1) To develop microcontroller based communication aid system for disable people.
- 2) To analyse system design in term of detectable range.
- 3) To adapt the function from Bluetooth with Android device in term for disable people.

1.3 Project Scope



Figure 1.1 Block Diagram Process of Project

This project involved the design of Arduino Uno, HC-05 Bluetooth Module Master Slave, Single Relay Module, and Bluetooth Serial Controller. This project used Android or mobile phone that utilizes Android software which send signal to Arduino programming.

Moreover, this project additionally utilized Bluetooth (HC-05) which send and receive a signal. Next, Arduino programming goes about as a microcontroller that receive signal by means of Bluetooth from mobile phone. To wrap things up, Android programming utilized MIT Application Inventor 2 programming to send signal to Arduino programming. The block diagram of process of project was shown in Figure 1.1.

1.4 Organization of Thesis

For the most part, the theory isolated onto five parts to clarify entirely streams, also effort to finishing the task. Every part determination examine in various subjects identified with venture. This theory spread onto introduction, literature review, research methodology, discussion, conclusion also recommendation.

In Chapter 1 would gave outline for task. Besides that, via implies were smooth individuals do not take after the advancement of project until the end they can in any case think approximately task thru outline. The outline unites Introduction of Task, Problem Statement, Project Objectives, plus Project Scope. Next, objectives were making taking into account the point why the task is directed besides scope about the methodology. By then, the problematic declaration expresses the motivation behind why this task is appeared.

Chapter 2 concentrates on the writing literature review that will portray every one of the information that was mention as a sort of point of view remembering the ultimate objective to finish up the task. Basically writing literature review will contain the truths or other perspective that we require that identify with the task that will manufacture. On that task, the writing literature review clarifies the essential information of Arduino Uno, HC-05 Bluetooth Module Master or Slave.

Moreover, Chapter 3 will formal and discuss the approach occupied to complete the task with accomplishment in light of the given timeframe. The vital viewpoints as it are the beginning method of arranging is call methodology. On the off chance that the procedure is not systematized at exactly that point would providence the problematic include the tasks.

Then, Chapter 4 demonstrates conclusion was acquired after framework checking besides improved that accomplish whole goals task. Besides that, this section studies by way of a vital share. This is because, the task would totally appearance uncertainty outcome was gained by way of fine that are scheduled. Along these lines considerable period measurement that must write on that section.

Lastly, in last chapter which is Chapter 5 was totally following a method besides operative headed for complete the purposes as stated on the previous part. However, this task need to complete up to clarify and understated component on that section. In upcoming suggestion on the task, it contains enhancing on the upcoming task development and renovation.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

Chapter 2 covered all elements like confirmation strategies, equipment review and Bluetooth technology they have been utilized as a part of this project. The literature review that has been done demonstrate the process in this project. Other than that, this chapter also included the researches on the journal from the previous project.

2.1 Previous Project Related

2.1.1 Wireless Table Waiter Service Call Calling Paging System Restaurant Table Button Caller Table Ordering Set K-303+K- 300plus+K-H3



Figure 2.1 K-H3 Call Button (Alibaba.com)



Figure 2.2 K-300plus-Black watches for waiter use (Alibaba.com)



Figure 2.3 Display Receivers K-303(Alibaba.com)

Komsun Tongsap (2012) defines Wireless Table Waiter Service Call Calling Paging System is widely used in service area of restaurant, hotel, cafe, hospital, and so on. It Wireless Waiter Calling Buzzer System comprise of table button for customer utilize and signal receiver for waiter or waitress use. At the point when the customer needs any service, he or she simply press the button on the table, the table number will be appeared on the 'Receiver' of watch or display screen with "ding dong" sound or vibration. So the waiters could offer service very timely. The system consist the following parts which is Receiver Screen, Wristwatch, Transmitter Button, Signal Repeater (optional), Acrylic Menu Holder Bord (optional). The advantages of these devices are the revolutionary product to increase staff efficiency and lower labour costs. This device is simple but elegant and value for money. Besides that, customer does not need to shout or wave hands to call

waiter and can improving customer appreciation of service. Furthermore, it also provides a comfortable atmosphere. The system manual of this device is shown in Figure 2.4 below.

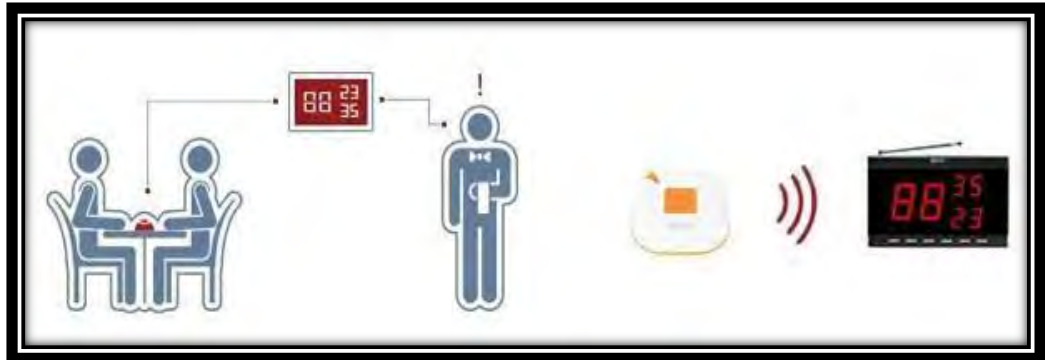


Figure 2.4 The system manual of the device I

Press the call when service is needed. The call bell number will be displayed on the receiver with a sound.

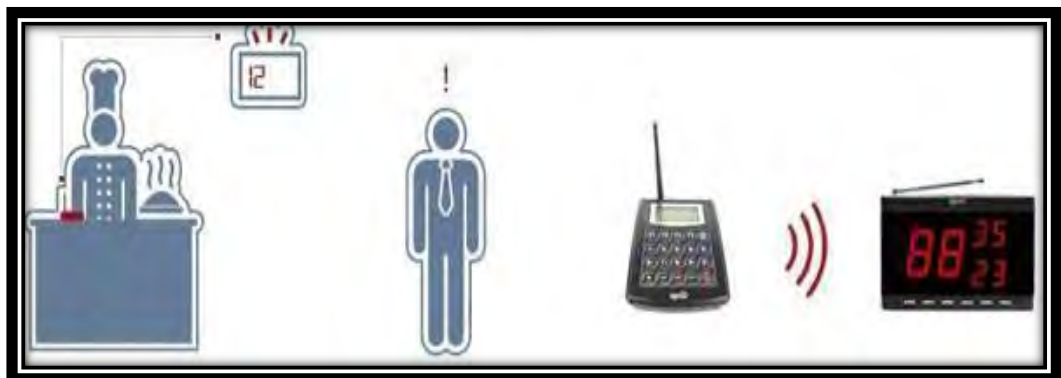


Figure 2.5 The system manual of device II

Press the number according to their sequence by transmitter. The number will be displayed on the receiver with a sound.

2.1.2 Smart Ordering System via Bluetooth

According to N. M. Z. Hashim (2013), the smart ordering system is proposed with the use of a handheld tool which is used to make an order at the restaurant. It is proposed to solve the problems which are faced by the restaurant's entrepreneur in the attempt to organize the restaurant more efficiently skilled and capable. The system uses a small keyboard which is placed on each table for the customer to make orders. Order is made by inserting the menu code on the small keyboard. This code comes together with the menu. A signal will be sent to the order section by Bluetooth communication, and automatically will be displayed on a screen in the kitchen. The project will reduce time to be spent on making the orders and paying the bills, whereby the cost and man power also can be optimized. The project started with reviewing several sources as the literature review. S. A. Rosle proposed a smart ordering system by using cable and PIC.

Refer to N.A Ali (2013), the project used electronic order keypad with transmitter and receiver circuit has been materialized. The project was not successfully functioned because the keypad designed is mismatching with the transmitter and receiver circuit. The improvement been done by using of keypad with other serial port device as an alternative to undertake the problem. The company of GeneralSoft Ltd, Silwood Business Centre had proposed "The SMART System".

They proved that by using this SMART system, it will guarantee not only improve of customer efficiency. By using the SMART system and its technologies restaurant will improve their company speed and accuracy. Advanced Analytical, Inc at Westlake village had introduced one system can eliminated application in Restaurant in acquaint as LRS Restaurant Server Pager Starter Kit (A. S. Jaafar, 2013).