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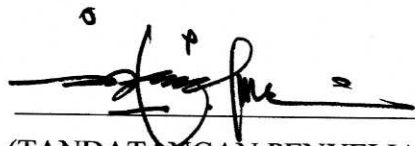
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Bluetooth remote controller for virtual devices / Mohd
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BLUETOOTH REMOTE CONTROLLER FOR VIRTUAL DEVICES

MOHD FIRDAUS BIN MD YASIN

**This report is submitted in partial fulfilment of the requirements for the
Bachelor of Computer Science (Computer Network)**

**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
KOLEJ UNIVERSITI TEKNIKAL KEBANGSAAN MALAYSIA**

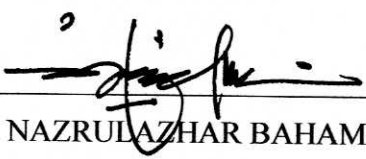
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DECLARATION

I hereby declare that this project report entitled
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is written by me and is my own effort and that no part has been plagiarized without
citations.

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DEDICATION

Specially dedicated to
my beloved family members who have
encouraged, guided and inspired me throughout my journey of education
my friends, and my colleagues.

ACKNOWLEDGEMENTS

In the name of Allah the Almighty and most Merciful.

First and foremost, I would like to thank Mr. Nazrulazhar bin Bahaman, my faculty supervisor who was very kind enough to give me the opportunity to work on such an interesting projects. He has always been there to point the way, provide insight, and take part on all aspects to make sure my project is successful during PSM 1 and PSM II. His intellectual originality, astute suggestions, and fresh approach have been invaluable for this project. I also want to thank the staff at FTMK for their continued support in finishing my report.

Thanks to my parents and family, who have supported me throughout my life and encouraged all my choices. I also like to thank to all my course mates for giving me endless cooperation and help me with the excellent ideas.

ABSTRACT

Bluetooth Remote Controller for Virtual Devices (BRCVD) is a Bluetooth application used to control virtual devices. This application involved two main devices which are the Handphone implemented with JSR 82 API for Bluetooth as the remote control and the Desktop as a platform for the virtual devices. The virtual devices has a function ON and OFF and has been develop inside a prototype system using Java programming while a GUI application using Java J2ME application installed inside the Handphone. The GUI application inside the Handphone has a function to turn the virtual devices at the prototype system ON or OFF. Once the application inside the Handphone choose to turn the virtual devices ON, Bluetooth signal sent to the prototype system and turn the virtual devices ON.

ABSTRAK

Bluetooth Remote Controller for Virtual Devices (BRCVD) adalah satu aplikasi Bluetooth yang digunakan untuk mengawal perkakasan maya (bukan perkakasan sebenar). Aplikasi ini melibatkan dua perkakasan utama iaitu Telefon Bimbit (Handphone) yang mempunyai JSR 82 aplikasi untuk Bluetooth sebagai alat kawalan dan Komputer sebagai tapak untuk membangunkan perkakasan maya.. Perkakasan maya tersebut mempunyai fungsi BUKA dan TUTUP dan telah dibangunkan di dalam satu replika sistem. Replika sistem tersebut telah dibangunkan menggunakan pengaturaaan Java manakala aplikasi Grafik Antaramuka Pengguna di dalam Telefon Bimbit menggunakan Java J2ME (Java untuk edisi Telefon Bibmit). Aplikasi Grafik Antaramuka Pengguna di dalam telefon bimbit mempunyai fungsi untuk mengawal perkakasan maya di dalam replika sistem untuk BUKA dan TUTUP. Apabila applikasi di dalam Telefon Bimbit itu memilih untuk BUKA perkakasan maya, satu isyarat Bluetooth akan dihantar dari Telefon Bimbit tersebut ke replika sistem and menukar perkakasan maya tersebut supaya BUKA dan begitulah sebalik nya.

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LIST OF ABBREVIATION

Abbreviation	Word/Description
BRCVD	Bluetooth Remote Controller for Virtual Devices
DFD	Data Flow Diagram
PDA	Pocket Desktop Assistance
LED	Light-Emitting Diode
WiFi	Wireless Fidelity
GUI	Guided User Interface
VB	Visual Basic
USB	Universal Serial Bus
PC	Personal Computer
API	Application Programming Interface
PAN	Personal Area Network
SDK	Software Development Kit

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CHAPTER 1

INTRODUCTION

1.1 Project Background

For this project, the Handphone provided with Bluetooth technology connected with a virtual devices inside a Desktop (system using Java programming as the platform). Using Bluetooth technology, the handphone connected with the virtual devices and control the devices either to switch it on and off. The virtual LED (representing the status of the virtual devices) inside the system representing the status of the devices. If the color is red, the devices are defined to be in off condition and if the colors turn to green, it means that the devices are being switched on through the handphone.

1.2 Problem Statements

- i. There are a lot of devices needs a cable as a connecting medium. While having the Bluetooth technology, users can save the usage of the cable.
- ii. Nowadays, each device usually comes out with specific remote controller. By implementing this technology, it will become more integrated by controlling devices using Handphone (single remote controller).
- iii. Nowadays, some devices have to use electrical power to make it work properly. By implement this technology; user can reduce power consumption because it does not require an electrical power to work.

1.3 Objectives

- i. Connecting devices without the need for cables. By implementing this technology, user can communicate each other using Bluetooth technology in range about 10meters.
- ii. Becoming more integrated within some devices. Nowadays, there are a lot of Bluetooth products that can be use by everyone. It can be either connected each other or within other products.

- iii. Industry wireless communications standard. Nowadays, Bluetooth product can be use for many purposes either at home, office, in motion or at play.

- iv. Becoming more affordable for everyone. There are a lot of Bluetooth products available at the market such as Handphone, Handheld PDA and Bluetooth Headphone. This product can be use by everyone especially Handphone.

1.4 Scopes

- i. This technology will used a Java J2ME programming as the GUI at the Bluetooth Handphone and using Java programming for the prototype system for virtual devices.

- ii. There is a Bluetooth security when two devices connected each other. The security is made to authorize the Bluetooth connection between two devices connected each other.

- iii. This technology can be use at anytime as long as two Bluetooth devices are close enough. (approximate 10 meters)

- iv. This technology may control virtual devices in a Java Programming system using Handphone in range or Bluetooth technology.

1.5 Project Significance

This technology is build for user's convenience. When using this technology, users can control devices (prototype) through the Handphone. It makes work become easier and faster. Through the Handphone which had the Bluetooth technology, users can control either to switch the devices on or off.

1.6 Conclusion

This will be the first phase to implement the technology and it is just a target to make sure this project work smoothly. An early planning is needed to make sure every problem can be solves. Next activity will be the literature review and project methodology which means that the selected approach for methodology has to be chosen.

CHAPTER 11

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

This chapter explains about the literature review and project methodology for the project. Work will be more on finding the fact, journal or article that connected with the project. The fact should have the author to support it. Besides, project methodology is also important as a guideline of activities for developers to follow and obey. There are a lot of methodology exists and depends on developers to choose the suitable one. Usually, it will be choosing according to project or system description.

2.2 Fact and Finding

In this section, developers find any fact that might be helping in developing the project. The facts can be an article, journal, book or paper review. An internet also can be used as a search engine for finding the facts according to the project but the sources from the internet usually not permanently kept and always change from time-to-time. It made the references from the internet not reliable for a long period of time.

2.2.1 Bluetooth Operation

Bluetooth networking transmits data via low-power radio waves. It communicates on a frequency of 2.45 gigahertz (actually between 2.402 GHz and 2.480 GHz, to be exact). This frequency band has been set aside by international agreement for the use of industrial, scientific and medical devices (ISM). Bluetooth is intended to get around the problems that come with infrared systems. The older Bluetooth 1.0 standard has a maximum transfer speed of 1 megabit per second (Mbps), while Bluetooth 2.0 can manage up to 3 Mbps. Bluetooth 2.0 is backward compatible with 1.0 devices. A number of devices that may already used take advantage of this same radio-frequency band. Baby monitors, garage-door openers and the newest generation of cordless phones all make use of frequencies in the ISM band. Making sure that Bluetooth and these other devices don't interfere with one another has been a crucial part of the design process.

One of the ways Bluetooth devices avoid interfering with other systems is by sending out very weak signals of about 1 milliwatt. By comparison, the most powerful cell phones can transmit a signal of 3 watts. The low power limits the range of a