RASPBERRY PI BASED EDUCATIONAL BLUETOOTH QUIZZING APPLICATION FOR ANDROID PHONE

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ABSTRACT

Bluetooth technology allow electronic device to communicate wirelessly.This paper is about Bluetooth quizzing system for student using RASPBERRY PI. It will utilize a quizzing system to allow the many student for giving answer . when Bluetooth is connected the can register and choose the option to complete the quiz. The result are automatically sent when quiz is done .Then data analysis can done.

Keyword : Raspberry pi, Bluetooth , Embedded system,educational application, quizzing application.

INTRODUCTION

The Raspberry Pi is a low cost single-board computer which has recently become very popular. .It is low cost stand-alone device which transmits

data using the Raspberry Pi with Bluetooth . It has a resistive touch screen display providing a user interface. The Raspberry Pi is controlled by a modified version of Debian Linux optimized for the ARM architecture. The display contains a graphical user interface which provides various fields for data entry via an onscreen keyboard. Also, various fields were provided to display data obtained from a remote host.

Bluetooth is a proprietary open wireless technology. Used for exchanging data over short distances from fixed and mobile devices. The use of this technology in the education system. The purpose of this project is to explore the use of Bluetooth and RASPBERRY PI for the delivery of educational materials. The problems of any educational institute are: 1) low attendance rate

2) low pass rates 3) low decision making capacity.

A paper based quiz system in every class can be too time-consuming. Therefore, a Bluetooth quizzing system was thought to be the most cost effective, quick method of addressing the above problems. The system collects responses, calculate marks and send quiz scores back to students. In thisway, students are encouraged to learn their work continuously before every class.

Raspberry Pi is a credit-card-sized single-board computer de veloped in the UK .It has two models. Model A has 256Mb RAM, one USB port and no network connection. Model B has 512Mb RAM, 2 USB ports and an Ethernet port. It has a Broadcom BCM2835 system on a chip which includes an ARM1176JZF-S 700 MHz processor, Video Core IV GPU, and an SD card. The GPU is capable of Blu-ray quality playback, using H.264 at 40MBits/s. It has a fast 3D core accessed using the supplied OpenGL ES2.0 and OpenVG libraries.

The chip specifically provides HDMI and there is no VGA support. The foundation provides Debian and Arch Linux ARM distributions and also Python as the main programming language, with the support for BBC BASIC, C and Perl. Bluetooth is a low cost, low power, universal radio interface in the 2.45GHz frequency ISM band that enables portable electronic devices to connect and communicate wirelessly via short-range, ad hoc networks. Bluetooth radios use Frequencyhop (FH) spread spectrum which divide the frequency band into several hop channels in order to cope with severe interference. Bluetooth units that are within range of each other can set

up ad hoc connections. Each unit can communicate with up to seven other units per piconet. To regulate traffic on the channel, one of the participating units become a master and all other participants are slaves.

I.LITERATURE REVIEW

A mobile quizzing system through which students can answer short questions in lectures with the use of Bluetooth. The main objective of this system was to provide the students with different technology options that would enhance their learning experience, as well as, encourage them to attend lectures thereby increasing the level of participation.
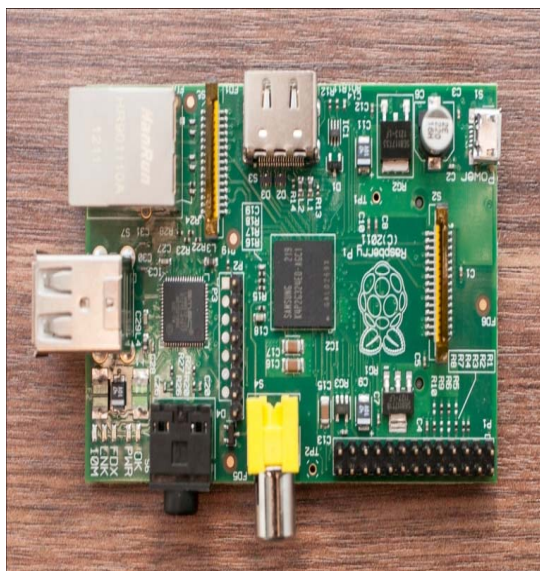
RASPBERRY PI DIAGRAM

## II .INTERFACING THE TOUCH SCREEN WITH THE RASPBERRY PI

The display is connected to the Raspberry pi via HDMI. The touch screen interface is achieved by building on top of the generic device driver provided by the manufacturer. To obtain fine precision the device is calibrated using the open source touch screen calibrator program Xinput-calibrator. The configuration settings were written to the device configuration files so that the need to run the configuration program after each boot up is eliminated. Also a shell script has been written which brings up the graphical user interface right after boot.
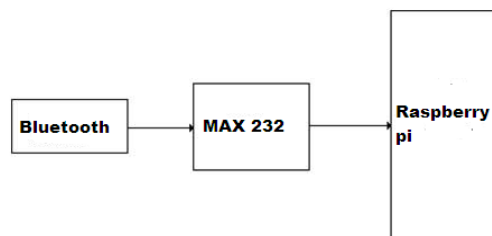
INTERFACING DIAGRAM

III. HARDWARE INTERFACE BETWEEN PI AND BLUETOOTH

We used a Broadcom 2046 Bluetooth 2.1 dongle with the Raspberry Pi. The first task is to burn the Debian Linux specific to Raspberry Pi controller board and install the drivers required for Bluetooth in the Raspberry Pi. PyBlueZ is a Python extension module written in C that provides access to system Bluetooth resources in an object oriented manner. The following commands will install the Bluetooth stack in linux *sudo apt-get install Bluetooth bluez-utils blueman, sudo aptget install Pybluez.* Once this is done, check with hcitool dev to confirm whether the device is connected or not. The output of the hcitool dev command will be the MAC address of the device. The *hciconfig* command can be used to get the status of the adapters. By default the Bluetooth adapter will be down. We get the Bluetooth adapter running by using the command *hciconfig hci0 up*. For the Bluetooth adapter to be detectable by other devices and to accept incoming connection requests both inquiry scan and page scan should be enabled.
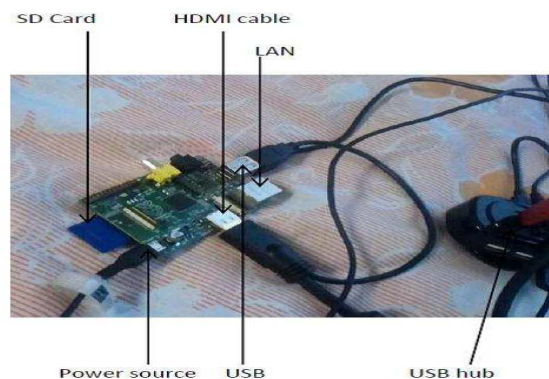
SYSTEM SETUP

IV. CONCLUSION

A Bluetooth quizzing application was developed for use in lectures. To help lecturers administer quizzes and in turn help students revise work previously learnt. Students will benefit by revising work done in previous classes. Bluetooth transmission in Raspberry Pi controller board with utmost accuracy.

Also when there is a mismatch between the sent and received data, we were able to detect it at all instances and notify the client system.Future works could improve on this method for supporting more simultaneously Bluetooth Connections on the server side.

V. REFFRANCE

1)Core Version 3.0.Accessed August 24, 2012. https://www.bluetooth.org/en-us/specification/adopted-specifications.

2) Hosny, W. 2007. "Power Engineering Mobile Education Technology." 2007 42nd International Universities Power Engineering Conference, 4-6 September, 2007, 971–974. Brighton

3) International Telecommunications Union. 2011. "Mobile Cellular telephon subscriptions." Accessed May24,2013.http://www.itu.int/ITUD/icteye/Reporting/ShowReportFrame.aspx?ReportName=/WTI/CellularSubscribersPublic&ReportFormat=HTML4.0&RP_intYear=2011&RP_intLanguageID=1&RP_bitLiveData=False.

4) Miller, Michael. 2001.DiscoveringBluetooth.Sybex Incorporated.

5) Kumar, C. Bala, Paula J. Kline, and Timothy J Thompson. 2004.Bluetooth application programming
with Java API. Elsevier Incorporated.

6) J. Bray, C. F. Sturman, "Bluetooth 1.1: Connect without Cable", *Pearson Education*, edition 2, 2001.

7) A. S. Huang, L. Rudolph, "Bluetooth essentials for programmers", *Cambridge University Press,* 2007

8) Powers, Shawn. "The open-source classroom: your first bite of raspberry pi." *Linux Journal* 2012.224 (2012): 7

9) Mitchell, Gareth. "The Raspberry Pi single-board computer will revolutionise computer science teaching [For & Against]." *Engineering & Technology* 7.3 (2012): 26-26.