

# REMOTELY CONTROLLED ELECTRONIC NOTICE BOARD

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**Abstract:** In this paper, we propose a remotely send notice to Digital Monitor from an Android application based on Raspberry pi card. Notice Board has been recalled in the first stage. In the second stage an application has been developed based on the android system. The different Wi-Fi is using for Data transmission. At any time we can add or remove or alter the text according to our requirement. At transmitter authorized PC is used for sending notices. At receiving end Wi-Fi is connected to raspberry pi. When an authorized user sends a notice from his system, it is received by receiver. Wireless is a popular technology that allows an electronic device to exchange data wirelessly over a computer network, including high speed wireless connections. The data is received from authenticated user.

**Key Words:** Android system, Web server, Raspberry pi card, Electronic components.

## I INTRODUCTION

The project is about displaying data sent from mobile phone over a network to remote server. The server has to receive messages received from client process and displays it on LCD/LED display. The text data is sent in real time is to continuously monitored and validated before it is displayed on the monitor. Raspberry Pi is a credit-card sized computer manufactured and designed in the United Kingdom by the Raspberry Pi foundation with the intention of teaching basic computer science to school students and every other person interested in computer hardware, programming and DIY-Do-it Yourself projects.

The Raspberry Pi has a Broadcom BCM2835 system on a chip (SoC), which includes an ARM1176JZF-S 700 MHz Processor, VideoCore IV GPU and was originally shipped with 256 megabytes of RAM, later upgraded (Model B & Model B+) to 512 MB. It does not include a built-in hard disk or solid-state drive, but it uses an SD card for booting and persistent storage, with the Model B+ using a MicroSD. Notice Board is primary thing in any institution or public utility places like bus stations, railway stations, colleges, malls, etc. But sticking various notices day to day is a difficult process. A separate person is required to take care of this notices display. This project is about advanced wireless notice board. The project is built around ARM controller raspberry- pi which is heart of the system. The project aims at designing a LCD Monitor based message display controlled from an Android mobile phone. The proposed system makes use of wireless technology to communicate from Android phone to Raspberry Pi (ARM7) display board. The system has a provision for giving message through text.

## II Inception of Raspberry Pi

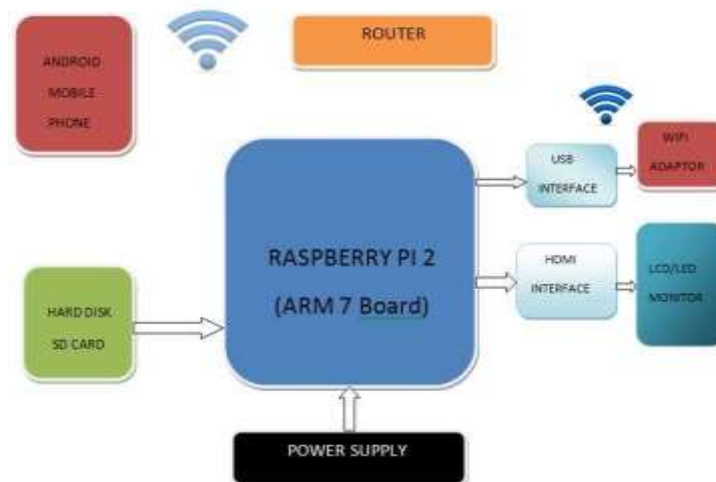


Figure1: Basic Block Diagram

### Hardware Used

- RaspberryPi2(ARM7BasedControlBoard)
- 5V2A AC-DCadaporttopowerRaspberrypiviamicro USB
- MicroSDCard (Atleast8GB)– amicroSDCard isusedto storeOSandother important files
- Wi-Fiadapter– AhighspeedUSB2.0 WIFIsupport2.4Gfollowing IEEE802.11nstandard.
- LCD/LEDscreen withHDMI support.
- HDMICable– tointerface RaspberrypithLCD.

- AndroidbasedSmartPhone

### III Applications Output

The major aim behind the Raspberry Pi was to educate people, especially children and teenagers, towards programming and basic hardware interfacing. The open body structure of the Raspberry Pi makes it a machine on which one can learn computer concepts. Applications of the Raspberry Pi can be given as follows:

#### (a) Examples of projects using Raspberry Pi

With a Raspberry Pi, switches, web server, enthusiasts have created home automation systems that can control fans and lights of a home from the Pi or even a smartphone.

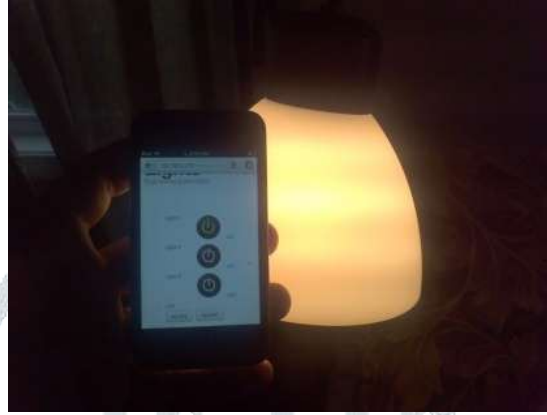


Figure 2: An example of a home automation system using RPi.

#### 1) Arcade gaming machine

Since the games of the 80's and 90's are forgotten today, people created retro style arcade gaming machines using simple switches, a screen and the RPi.

#### 2) Landline

Why pay for your landline when you can use your internet and your old landline phone with the Pi!



Figure 3: Landline using RPi and Google Voice

#### (b) Comparison of Raspberry with the competitors

The chief competitors of the Raspberry Pi are the Arduino and the Beagleboard. Both are single board computers and have applications similar to the Raspberry Pi. A brief comparison of the three of them is shown below:

Name	Arduino Uno	Raspberry Pi	BeagleBone
Model Tested	R3	Model B	Rev A5
Price	\$29.95	\$35	\$89
Size	2.95"x2.10"	3.37"x2.125"	3.4"x2.1"
Processor	ATMega 328	ARM11	ARM Cortex-A8
Clock Speed	16MHz	700MHz	700MHz
RAM	2KB	256MB	256MB
Flash	32KB	(SD Card)	4GB(microSD)
EEPROM	1KB		
Input Voltage	7-12v	5v	5v
Min Power	42mA (.3W)	700mA (3.5W)	170mA (.85W)
Digital GPIO	14	8	66
Analog Input	6 10-bit	N/A	7 12-bit
PWM	6		8
TWI/I2C	2	1	2
SPI	1	1	1
UART	1	1	5
Dev IDE	Arduino Tool	IDLE, Scratch, Squeak/Linux	Python, Scratch, Squeak, Cloud9/Linux
Ethernet	N/A	10/100	10/100
USB Master	N/A	2 USB 2.0	1 USB 2.0
Video Out	N/A	HDMI, Composite	N/A
Audio Output	N/A	HDMI, Analog	Analog

Table 1

**(c) Compilation Procedure and output:**

Step by step procedure:

Startup screen when switch ON the Micro controller

**Desktop Menu**



Figure 4: RasperryPi controller display

Select option for IP address, which needs to be configured in android phone



Figure 5: Getting IPAddress by using ifconfig command

Configuration of ip address in source code



Figure 6: Entering address in CODE

**Need to run python script to receive message from android**

Figure 7: Executing CODE

As mentioned above figure run via python  
Output:

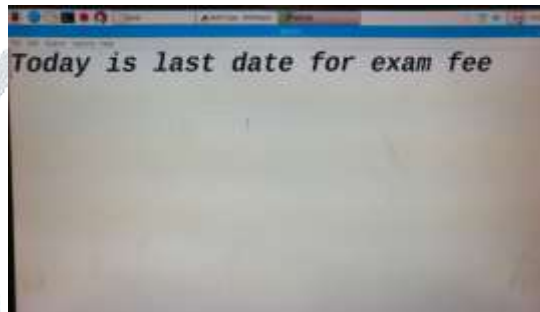


Figure 8: Output display

**(d) Advantages and disadvantages**

It is important for customers and business owners that want to get the Raspberry Pi to consider whether it fits with their business strategy and are willing to go through the process of putting it together and tailoring the product to their own needs. The benefits that this products offers beside the low price point are:

This product will not be useful for bigger businesses that already have big servers, which would already do everything that the Raspberry Pi does, so it would not be worth it to take the time to get someone to put it together.

**IV Conclusion**

Raspberry Pi is an innovative product. The sheer number of users and fan base support the fact that the device can see a great future ahead. The device can surely help anyone who really wants to lean electronics and computers. Increasing the processing power can surely help the product in the future. Also supplying a case and a proper instruction manual will improve the product. Also currently Windows operating systems are not compatible because of the ARM processor. If the processor is improved or any workaround is found to run Windows directly on the Raspberry Pi, then it can be a great step for the Pi.

The Raspberry Pi is an amazing piece of hardware because of the combination of the features of a traditional computer and an embedded device. Supporting computer operating systems like Linux and providing simple input/output lines i.e. the GPIO makes it perfect for controlling almost anything. Programming the GPIO is much easy and intuitive then an traditional FPGA or microprocessor. Finally it can be said that Raspberry Pi can be effectively used if its processing power is kept in mind. It can work as a personal computer but cannot replace it.

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