Online Examination System using Raspberry pi

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ABSTRACT

Online examination is the new scenario which is effective solution for education evaluation. Most of the institute, colleges, university, schools as well as for the competitive exam use online examination system for conducting exams. The previous online examination system is based on browser/ server structure or client/server structure as they require individual computer to every student. As the number of students are increasing we need more computers this will increase the cost. To avoid this we have designed an embedded device which is keypad based. This embedded device can be used to conduct online examination with only one desktop computer. The main objective of this system is to provide automated system that not only saves lot of time but also gives accurate and fast result with a higher security.

Keyword: Raspberry pi, 7 Inches Touchpad LCD screen, PC, Wi-Fi dongle,etc.

I. "INTRODUCTION"

Today Computer & Network technologies are widely used many computer applications are based on Internet/Intranet. The online examinations areconducted through the internet or intranet. Many organizations and the university's use the online examination worldwide successfully & issue result immediately. The mostly online exam widely used question types of the web based examination system are objective tests & quizzes.

Now a day'sonline examination system is widely used all over the world. The competitive exams are online and the numbers of candidates for the exam are increasing. The online examination requires a computer system with a keyboard, mouseand processor. As the number ofstudent increases the requirement for the computer system also increases this increases the cost. Instead of computer system for every candidate we have designed an embedded based system which uses only one master computer with an embedded device. The main objective of thisproject is to take online examination with effective & efficient way with less cost.

II. "PREVIOUS WORK"

Online Examination is a great opportunity for exponential growth. Today all online examination system isbased on the browser/server structure or Client/Server Structure. The Client/server structure is mainly based on LAN environment of application development but browser/server is not limited by region because it uses internet communication. The online examination system is dependent on examination management module. This module is consist of storing the questions with their option solution, examination information, and information for processing and analyzing. Online examination system required a computer with a keyboard and mouse with an internet connection.

The online examination also uses an authentication system for more security. The authentication can be done by using a profile based authentication system or by using the biometric authentication, object based authentication, etc. In biometric authentication system there are various methodslike Fingerprint authentication system, Face recognition, signature verification or audio/video recognition.[2] All these system requires computer and the internet connection for communication purpose.

Now a days the examination system is dependent on paper-pen Exam in small Company or Institute/School. Since some of them could not able to afford a computer to every student for Online Examination.

III. "PROPOSED SYSTEM HARDWARE"
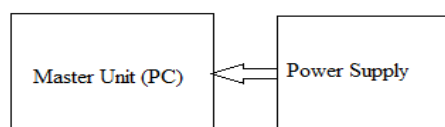
Figure 1(a): Master unit Block Diagram
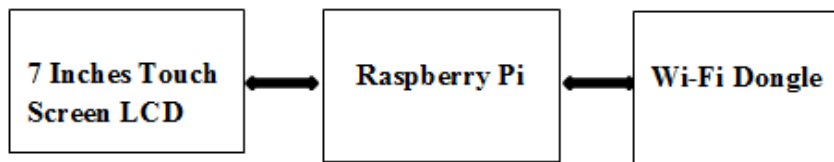
Figure 1(b): Slave unit Block Diagram
Figure 1: Online Examination System using Raspberry Pi

3.1 Master Unit:

The master unit consists of a computer which is connected to internet for sending and receiving questions and answer. The master unit sends data to slave unit and again receive data from slave unit. All students detailed information is save in the master unit and result of examinationis alsostored in the master unit.

3.2 Slave Unit:

3.2.1 Raspberry Pi:The Raspberry Pi is a series of credit card–sized single-board computer developed in the United Kingdom by the Raspberry Pi Foundation with the intent to promote the teaching of basic computer science in schools and developing countries. The Raspberry Pi 2 delivers 6 times the processing capacity of previousmodels.This second generation Raspberry Pi has an upgraded BroadcomBCM2836 processor, which is a powerful ARMCortex-A7 based quad-coreprocessor that runs at 900MHz. The board also features an increase inmemory capacity to 1Gbyte.40-pin 2.54 mm (100 mil) expansion header: 2x20 stripProviding 27 GPIO pins as well as +3.3 V, +5 Vand GND supply lines,15-pin MIPI Camera Serial Interface (CSI-2),Display Serial Interface (DSI) 15 way flat flex cable connectorwith two data lanes and a clock lane and 3.5mm jack, HDMI4 x USB 2.0 Connector also raspberry pi hasMicro USB socket 5V, 2A. The raspberry pi is connected to LCD screen with HDMI connector.[7]Raspberry pi is used as a mini computer and it also connected to internet through the Wi-Fi dongle for receiving and sending the data to/from master unit.

3.2.2 7 Inches Touch Screen LCD: This 7" Capacitive Touch Screen LCD enhances the UI experience in any project. It supports various systems such as Raspberry Pi, Banana Pi, Banana Pro, BeagleBone Black etc. The built in HDMI interface enables the display to work as computer monitor just like any other HDMI screen.Display comes with preloaded Raspbian driver and Ubuntu image.[8] While the display is controlled over the HDMI interface the touch control is done via USB interface. To reduce the power consumption backlight of the display can be switched on/off as per user preference. The Touch screen LCD is used to display the image. The Touch screen LCD is connected to Raspberry Pi with the HDMI cable for communication between the LCD and the Raspberry pi.

IV. "PROPOSED SYSTEM SOFTWARE"

4.1 PHP:

PHP is the open source Web scripting language that has joined Perl, ASP, and Java on the select list oflanguages that can be used to create dynamic online environments. It is also a book about programming. In the space available, it is neither possible to create a complete guide to programming in PHP nor to cover very function and technique that PHP offers.PHP is designed to integrate well with databases.PHP codes runs much faster than ASP because it runs in its own memory space while ASP uses an overhead server and a COM based architecture.PHP is flexible for database connectivity. It can connect to several databases the most commonly used is the MySQL. MySQL can be used for free. If ASP is used, MS-SQL, a Microsoft product must be purchased.

V. "RESULT"

The Slave device can be start only when master unit send the start command. After initialization of slave unit every candidate enter there user name and password. After authentication is successful or user name and password is right then examination starts. Question can be display sequentially and after time out result can be display immediately.

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