

DESIGN AND DEVELOPMENT OF SYSTEM FOR VIGILANCE ON EXAMINATION

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Abstract: Examination plays a vital role in education system. During examination period there may be shortfall of (question paper, answer booklet) staff alteration and other need of students such as water, graph etc. For these complications the monitoring person has to depend on man power to pass this information to the examination wing. This process takes more time and students are not fulfilled their need at right time. To overcome the above complication, a remote keypad module is given to the monitoring person. When monitoring person press any of those keys the message is sent to examination wing via Wi-Fi through raspberry pi and notification will be displayed in the monitor. So the exam coordinator can take responsibility to solve the complication. At the same time the message will also be passed to the exam coordinator through GSM. The main concept of the project is to provide smart communication between examination hall and examination wing.

Keywords: Raspberry pi, Wi-Fi, GSM.

I. INTRODUCTION

Wireless technology mainly exhibit exchange of information between two or multiple devices which is usually connected to a wide range of devices. The evolution provided by this technology gives the sophisticated control to user by providing the transfer of message between two or more points that are not connected by electrical conductor. In this communication design electromagnetic and radio waves plays major role for transmission of information. This project deals with examination hall vigilance and control in wireless environment. Here we use raspberry pi and enhance with Wi-Fi technology.

II. EXISTING SYSTEM

Examination smart link serves as a reliable and efficient system for communication between examination hall and examination wing through wireless device zigbee and visual basic for receiving the information using GUI. The zigbee has disadvantage such as transmission speed is only 250kbps it consumes 1/4th of power.

III. DIFFERENCE BETWEEN ZIGBEE AND WI-FI

Specification	Zigbee	Wi-Fi
Standard	802.15.4 IEEE Standard	Standardized under IEEE 802.11x
Operating frequency	900-928Mhz and 2.4Ghz	2.4Ghz,5Ghz recently 60Ghz
Bandwidth	1Mhz	2Mhz
Network Range	10 to 30 m	30 to 100m
Bit Time	4μs	0.00185μs
Power Consumption	consume 1/4 th power consumed by Wi-Fi	Low power consumption
Network Security	Uses AES method for encryption	Uses WEP,WPA and WPA2 protocols for network encryption

IV. PROPOSED SYSTEM

Problem identified:

In the above existing system zigbee consumes more power for data transmission with limited coverage area due to minimum bandwidth ranges 1 MHz. For the above reason it cannot provide as a complete product. To overcome the problem identified we are proposing the same system with recent technology raspberry pi and python programming. Which increases the coverage area through Wi-Fi, low power consumption and external hardware like personal computer are reduced since raspberry pi is said to be a mini computer and further upgradation can also easily updated frequently.

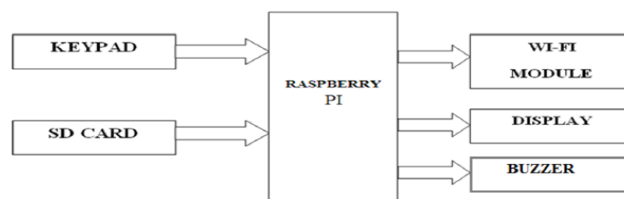
V. BLOCK DIAGRAM OF PROPOSED SYSTEM

The architecture of examination vigilance system uses its device as raspberry pi which interface all other components. The two main units of proposed system are:

1. Exam hall unit
2. Control unit

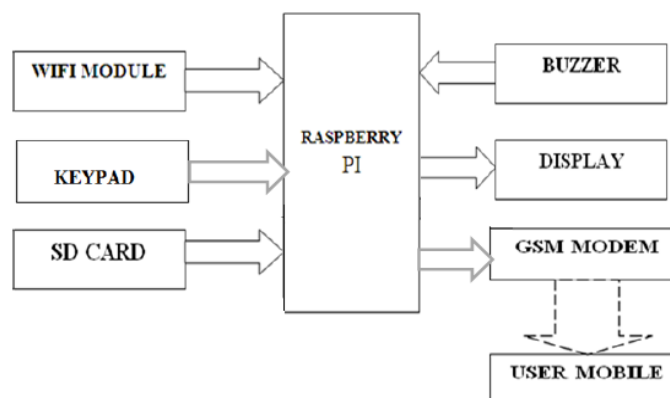
BLOCK DIAGRAM

EXAM HALL UNIT



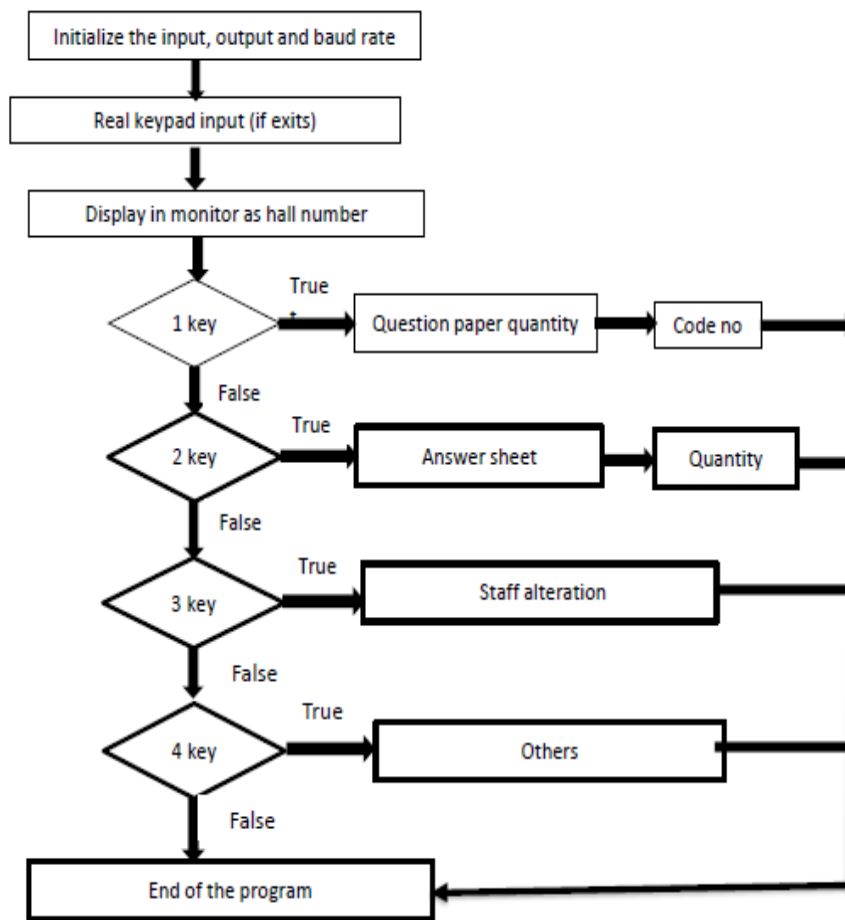
In exam hall unit raspberry pi is interfaced with keypad, SD card, Wi-Fi module, display and buzzer. Here the requirements are displayed in the screen such as 1- question paper, 2- answer booklet, 3- malpractice, 4- staff alteration, 5- other requirements. The monitoring person can choose the required option.

CONTROL UNIT



The control unit consists of same components in exam hall unit in additional with GSM modem. Once the key is pressed the information is sent to the control unit via Wi-Fi. The information is displayed in the pc and also passed to the coordinator mobile.

VI. FLOW CHART



VII. COMPONENTS DESCRIPTION

1. RASPBERRY PI:

Raspberry pi is a tiny and dynamic affordable computer which has been developed by the raspberry pi foundation with low cost system to the students.

Its processor speed ranges from 700Mhz to 1.24Ghz and its specification is powered by BCM2835 system on a chip which comprises of 32-bit ARM1176JZFS processor.

The raspberry pi 3 model B features have four USB ports, a micro SD card, HDMI ports and an Ethernet port.

2. KEYPAD:

A keypad is a set of buttons arranged in a block or “pad” which bear digits, symbols or alphabetical letters. Pads mostly containing numbers are called a numeric keypad.

3. WIFI MODULE:

ESP8266 Wi-Fi module is a highly integrated chip designed for connecting various devices around the world. This module has on-board processing with certain storage capabilities which integrates with sensors and other output application. Specific devices through its GPIOs with minimal development up-front and loading during run time.

4. GSM:

SIM300 modem with TTL is the world’s most popular standard which is used for data transfer. The basic AT commands are loaded in to the program by interfacing the computer.

5. BUZZER:

A buzzer is an electronic device which is used to generate audio signal by using mechanical, electromagnetic and piezoelectric. The buzzer is used for notification and alert.

VIII. CONCLUSION

The design of examination vigilance system with raspberry pi and Wi-Fi is done successfully. It has been proved that it satisfies the various objectives of providing verifiability, security by maintaining the control of the system. The disadvantage in the existing system has been overcome by using wireless technology Wi-Fi with maximum bandwidth and high transmission speed.

FUTURE SCOPE:

This is an advanced project in vigilance, in future this system model can be modified as students and staff attendance monitoring, class teaching record maintenance and it can also be linked with IOT for various applications.

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