Scientific Journal Impact Factor (SJIF) : 1.711
International Journal of Modern Trends in Engineering and Research
IJMTER
ISSN (ONLINE) : 2349 - 9745
ISSN (PRINT) : 2393 - 8161

System for Visitor Pass

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Abstract—Earlier visitor pass procedure consists of an application writing to higher authority and signature of higher authority as well as security. This procedure takes lot of time and paper gets wasted. This paper aims to develop a system for Gate Pass using KIOSK. The system would be developed using Raspberry Pi. It would work with the help of Internet Connectivity to send SMS and Email for verification of user which will save paper in large amount. Once the user gets verified, he/she will get the Gate Pass and can leave the premises for his/her personal work.

I. INTRODUCTION

we have seen various industries/institutes where there is a compulsion of taking a gate pass to enter the premises as well as while leaving the premises before time. The gate pass is generally either a written chit of paper or a receipt sheet. This sheet remains of no use once out of the premises and there is wastage of paper. Our system proposes to give the "Paper Saving Idea" for the same. It consists of a design where the visitor can enter the required details viz. visitor id, name, contact, reason to enter/leave, and where he/she will enter this on a touch screen enabled kiosk system where this information will be further redirected to the higher authority in the organization. The higher authority would contain the details of the visitor from database. If this is true then details of visitor would be saved into database & once it is done the permission is granted, then the respected visitor will get a confirmation that he/she is allowed to enter/leave the premises before time.

II. LITERATURE SURVEY

It is observed that a lot of manual work is done by both student and staff for obtaining a gate pass or leave forms during urgencies. Also it is seen in colleges that a lot of paper gets wasted or thrown in garbage in the form of gate passes and leave forms. Hence, to save paper we have generated this automated system for a gate pass where fast and accurate work can be done and the usage of paper comes to null.

Touch Screen is the medium to interact with an system and user in an interactive way. Touch screens have proven to be very useful in all ways. Now-a-days everything is based on touch screens like our smart phones, laptop, smart TV"s, etc. It becomes easy to give input using touch and also the output is received on it. Touch screen operation is very easy and can be done by people of any age. Touch screen here has a very important role of getting data from student to generate his/her gate pass. Touch screens has very types like resistive and capacitive. In earlier days we were using resistive touch screens that were using register to identify the X and Y co-ordinate of the point where user has

touched. This type of touch required little pressure and was even slow in speed. But today we are using capacitive touch which proves to be very easy and fast as compared to resistive. In this touch technology the capacitor is used that stores charge wherever the user touches and identifies the co-ordinates using that charge.

Due to this operation to be performed on that touch is processed faster and hence the process becomes easy.

Raspberry Pi is a board containing micro-controller, interfacing pins, usb ports to attach usb devices and a display connector. This board supports various operating systems like Raspbian, Ubuntu, Windows 10, etc on which user can do further executions. This board can perform various operations as programmed on it. In this the main OS is the raspbian given by Raspberry Pi developers itself and the programming supported is in Python language. So the user needs to program it in python to execute further operations on it. Raspberry Pi in this project is the main hardware that will connect the other hardware such as Touch Screen, Wifi Module, etc. Here, we will execute and Gate Pass System.

Fig 1 : Raspberry Pi

Various projects have been implemented using Raspberry Pi. Projects based on small things such as an Portable App Store. Raspberry Pi is a very small board that itself is portable so can be carried anywhere. It requires only 5V DC supply to work and supports many features such as Display output, camera connection, WiFi connection, and some other electronic circuits can be connected using I/O pins. The software then can be executed using Raspberry Pi. Earlier raspberry pi supported only Raspbian OS and had few connectors only. But now Raspberry Pi 2 has been launched with even more connectivity and improved hardware configuration and also more OS support. The Raspberry Pi 2 has a 900 MHz Quad Core ARM-Cortex A7 Processor, 1GB of RAM, USB ports, HDMI n Ethernet connectivity and many more. As there is evolution in technology the devices also performs better. Hence, Raspberry Pi proved efficient in our project.

Touch screens in earlier stage were only having connectors to connect to any device for its output. They were simply connected with circuit which had micro controller that operates and user gives commands that were shown on that screen. The screens were black and white and barely had touch support. The screens don‟t have pixels concept, instead they were simple screen, 7 segment displays, LCD and then came LED. These screens now supports color picture in different pixel resolutions. Screens can also be connected to a circuit board and also to another device thought HDMI or VGA support. HDMI is High Definition Multimedia Interface supports HD exchange of content from one device to another. This was very efficient way of displaying information on screens and the operations

can be easily handled through "Touch" support and directly inputs could be provided using that screen.

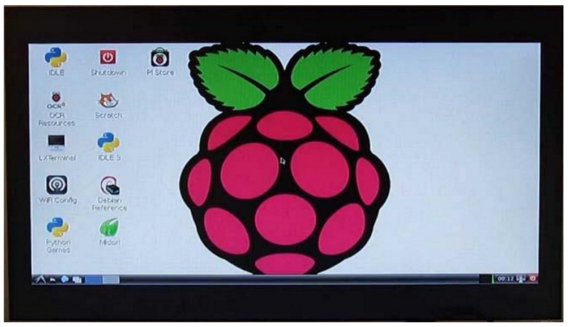

Fig 2 : Touch Screen connected to Raspberry Pi

WiFi is an wireless internet technology in which user can access internet without requirement of wires. It is completely portable and provides fast internet access. Basically a WiFi is an router setup that spreads internet connection upto a certain limit. It uses antenna of certain dBi to spread the connectivity. Earlier it had only one antenna and now router can have 3 antenna and that also of dual frequency that will increase the speed and also network connectivity to a large area. Earlier WiFi router didn"t had any security so anyone could easily access the internet. This was something that needed security because the plan you purchased is used by someone else free of cost. So then some security standards were introduced such as WPS, WAP, WAP2 PSK that helped to set a custom password to use the internet on WiFi. Hence we are using WiFi module here to send email to higher authority for verification and also to send SMS to student and security for its confirmation.

KIOSK Systems are basically a machine having computer with some hardware that are assigned for particular work. For example we can have a KIOSK in an bank to deposit cash and also to print passbook. The best example of KIOSK that we are using in day-to-day life is ATM machines. ATM machines are used to withdraw cash, check balance, print mini statement, etc. The KIOSK used to deposit cash in banks has computer connected with camera for security and this mechanism is called CDM(Cash Deposit Machine). In this, the user comes and enters his account number then the account number gets verified by the machine through its database. After that the deposit window comes and the user needs to select the type of notes he/she will enter into the machine. Then after entering the notes the machines counts the number of notes and the total amount deposited into the account. After its verification the money gets deposited into his/her account and the user gets printed receipt of that transaction for further reference. Also when the money gets deposited into his/her account the user gets an SMS on its registered phone number and the user can also get the transactions printed on his/her passbook with the use of other KIOSK machine.

Kiosk software is the system software used to design for better user interface for an interactive kiosk system to make it easier to use. Kiosk software locks down the extra applications present on the machine to protect it from hackers. Also the KIOSK software hides the extra controls from the system so that no user could operate any function rather than for which the KIOSK is being used. Kiosk software also supports remote monitoring to manage multiple kiosks from different locations. Email or text alerts can be automatically sent from KIOSK for a specific purpose. The content on the KIOSK can also be updated remotely so that chances of getting failure gets reduced. Also the data updated is dynamic so the data is more accurate and latest at its best as compared to static data. Software acts as an interface between KIOSK hardware and application installed on KIOSK. It allows user to interact with the system and perform their work so that an output could be generated through it.

Fig 3 : KIOSK System

Kiosk system software maintains security from hackers and other malicious attacks. The data in the KIOSK system is confidential so the proper security should be provided. Kiosk software must be able to prevent misuse of the features provided and also identify any malicious attack on the data. Some KIOSK can also pass an alert message to the owner of the KIOSK about the malicious activity on the system. If someone tries to hack or tries to extract data from Kiosk then the machine automatically gets locked and the alert message is being sent to the owner so that owner can take respective action on it and prevent it from further damage. Kiosk software is a component providing security from unauthorized access.

III. SECURITY FEATURES

It is the feature of a kiosk software to prevent the user from reaching the desktop or file system or to access any other programs on machine. This type of security is difficult to implement because standard print dialog allows the content to be printed to a file and enable the user access to the file system. If the kiosk includes a keyboard, the kiosk software must be able to disable all special keys and keystroke sequences such as Control-Alt-Delete, Sticky Keys, etc. With browserbased or Internet based kiosks, the standard browser menus should be disabled because these provide too much configuration control to the user which could result in accessing the files using browser. It is also important to prevent the user from accessing URLs not applicable to the function of the kiosk. This is possible by hiding the address bar and page blocking into the kiosk system software or browser lockdown software. Custom toolbars and navigation options are some of the features of kiosk software for better security. Many times a touch screen keyboard is used in place of a physical keyboard to maintain security. The touch screen "virtual" keyboard is often built into the kiosk software and have custom design options which is more safe and does not supports input with key combinations so the user cannot enter in special menus. Additional features of kiosk software include external devices (allowing for barcode readers, credit card readers, proximity mats) more advanced deployments may also utilize management features such as usage, statistics, content & health management. One important feature of kiosk software is the ability to clear the cache, user history and data from the browser so that no other user could access it and misuse it. This prevents users from accessing private data and protects both the device & the user from unauthorized data access. Another feature of kiosk software is to disable USB ports and other external access so that no Virus can enter into system as well as user cannot copy internal files into USB device. This feature prevents hacks such as that of copying any confidential information from Kiosk to the USB drive.

IV. FUTURE PLANS

Currently we have developed KIOSK system for visitor to use in college for gate pass. In future we can develop it for Staff to use it in college. Also this system can be used in various organizations/companies to get gate pass for personal reasons to leave the premises before time. Gate pass is for one who does not belongs to particular organization and needs to enter that organization for some work or to be a part of it. Gate pass is a chit of paper that contains the name of the visitor and his reason for visiting. This is done to keep record of the entries and exit in that organization that also keeps track of entry with time and date. We can also add security feature such as camera to capture picture of the visitor to verify it using image processing. Also the visitor‟s signature can be captured through digital signature and also finger print recognition can be used to verify the visitor.

V. CONCLUSION

Hence we can conclude that this system would prove to be an efficient system to obtain a Gate Pass in any organization. Using this system the usage of paper decreases drastically and gate pass can be obtained through SMS that proves to be more secure and easy process which also saves time in obtaining gate pass and thus makes procedure easy. Also higher authority can generate report directly from database rather than maintaining record of gate pass taken by each visitor „n‟ times.

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