

Smart Lecture Delivery Using Raspberry Pi

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ABSTRACT

The paper describes the implementation of the Smart Lecture Delivery System using Raspberry Pi that contain operating system Ubuntu Core; which Automatically record the lectures in a college or any institutes and stores them in a database and later on any student can view this lectures video with his login, it will benefited for all including if someone is not attending lectures or anyone absent. It's also useful for record attendance and also useful for security purposes and checking student's behavior in class.

Index Terms: Smart Lecture Delivery, Lecture Delivery using Raspberry Pi, Raspberry Pi Recording, Lecture recording using Mini Computer

I. INTRODUCTION

Now-a-days technology plays very important role in human life. With the help of Raspberry Pi we have made Smart Lecture Delivery System which can record lectures and saves them into our database.

The current systems present in the market are very expensive and have limited capabilities. And they all are CCTV based not included much features in that.

We have developed system using Raspberry Pi. The Raspberry Pi is a less costly credit-card sized computer that plugs into your TV. It is a capable little computer which can be used in many electronics projects and also in the desktop PC's that does many things. It is developed in response to make computing more widespread in classrooms, homes and 3D world. It's a tiny, cheap & portable robust connect to real world objects.

The second module of our project was the database where we can store the recorded sessions. Firstly we stored data temporary in SD Card because Raspberry Pi supported SD card .Then we move the data into our database through FTP Server.

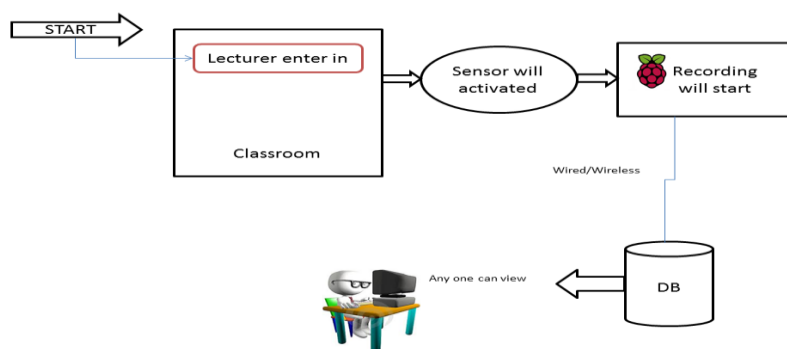


Figure1. Flow diagram

a. SCOPE

This Project deals with the security as well as used for attendance management of students then also used for revision of lecture if someone has missed during live trainings.

Now we are only try to deploy this project in our college itself but in future it will very useful for all other colleges also. In current we are deploy this project in classes, schools.

It is very useful for record the attendance of students because in today's world, there are lots of students who are marking attendance as proxies so with the help of our project it's not possible .In future era, with some more modification we can use this in Traffic light control. And In future we can add or modify with help of raspberry pi for better features of this projects as we know there are more than hundreds of application of Pi kit.

b. ADVANTAGES

- We are using CCTV camera for recording of video lectures, which is controlled by Raspberry pi, due to which whole system cost is very less.
- Raspberry Pi having edge on arduino, normal chipset as it support linux operating system which is open source technology.
- As it's a smart technology, it will help to avoid proxy attendance.
- It consumes very less power.
- Our main intention to make this project more student friendly so that they can access video lectures from anywhere at any time from server. Where as CCTV based system is mainly used for surveillance purpose which does not provide access rights to all.
- In future era, with some more modification we can use this in Traffic light control.

II. SYSTEM ARCHITECTURE

The below figure describes the complete tentative propose architecture of our project. This starts with the starting state with sensor ,whenever teacher starts the delivering lecture toward blackboard our system starts recording the lecture and then after some time it will of recording it will converted into a database of system for future use.

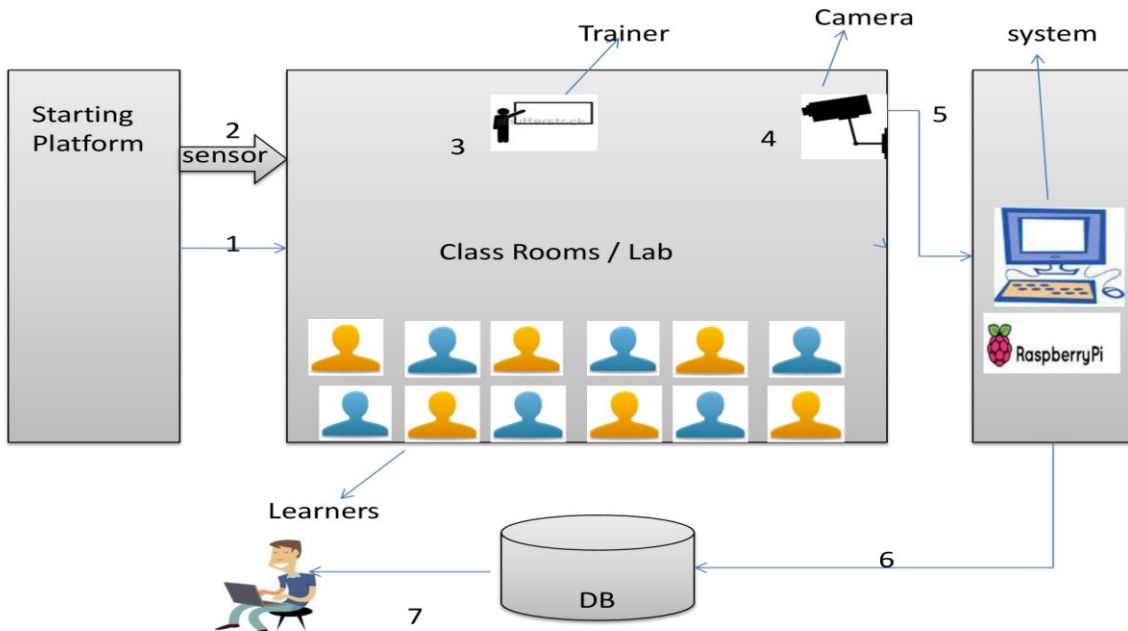


Figure2. System architecture for Smart Lecture Delivery Using Raspberry Pi

III. PROJECT DESCRIPTION

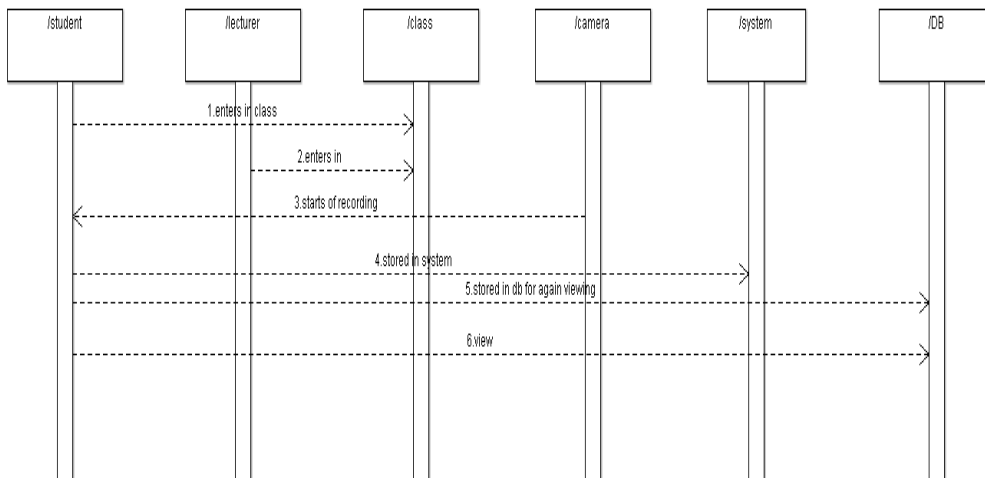


Figure3. Sequence Diagram for Smart Lecture Delivery Using Raspberry Pi

We are in process of making smart lecture delivery system for classes, colleges and schools for all and it will benefited for all including if someone is not attending lectures or anyone absent. Its also useful for record attendance and also useful for security purposes and checking students behavior in class.

Whenever the lecturer or trainer starts the lecture toward blackboard then through sensor the actual recording will starts and after completion of lecture it will refresh and will be move to the database because we don't have enough space to record more no.of lectures at same storage. With the help of database anyone can see the what is recorded, lectures .If any students remain absent from so many days then he is never in loss because he has power to watch the video of previous lectures.

Our project also be useful for attendance record. Through Ethernet cable we are worked on data transfer strategy. With the help of Ethernet cable we are transfer data from camera to sd card and then to our server. as per size of the SD card the recording will be stored and then it will refresh and transfer to the database system. We are using some technology to work on synchronization between recorded voice and motions.

The diagram describes that the lecturer enters the classroom and then sensor will activated and session will started and then it will saved temporary in SD Card then through FTP it will move to the database.

IV. RESULTS AND EXECUTION

We have two results i.e. the hardware and the software result. The hardware includes the Raspberry Pi and Camera. The sensor will activated and input was given to the Pi then recording will started and stored in SD card .

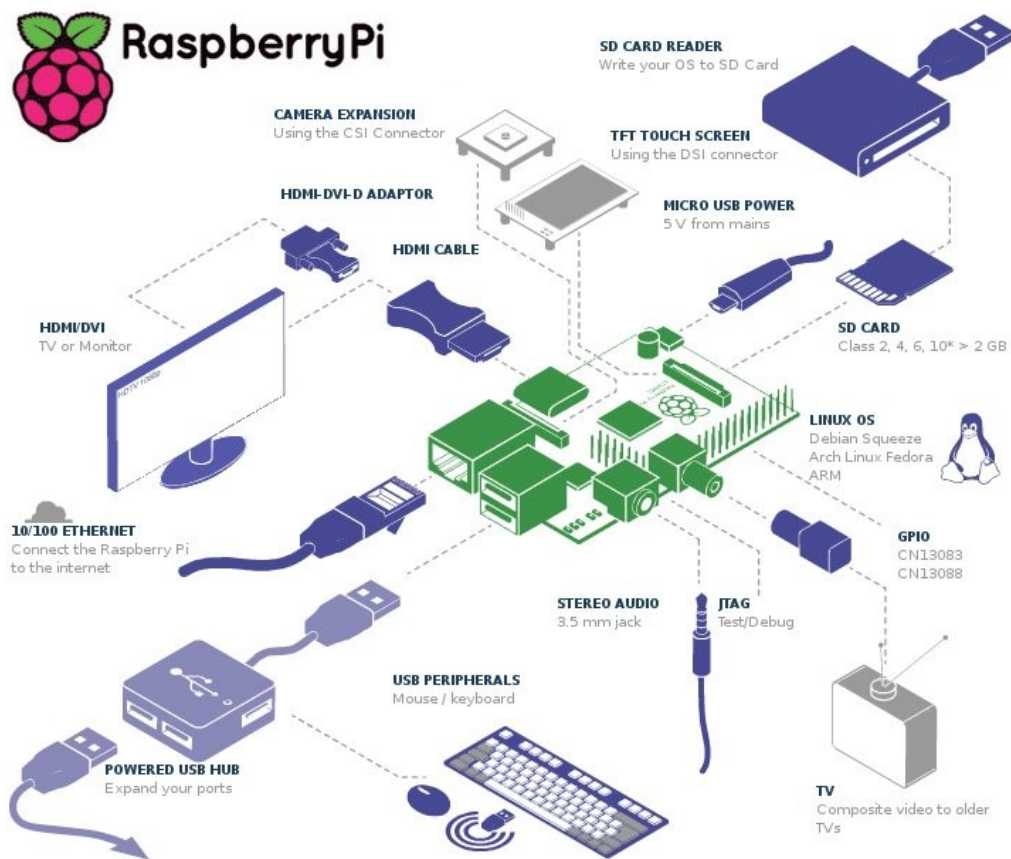


Figure4. Raspberry Pi with Peripherals

	Model A	Model B+
Target price	US\$25	US\$35
Memory SDRAM	256MB	512MB
USB 2.0 ports	1 (direct from BCM2835 chip)	2 (via the on-board 3-port USB hub)
CPU	700 MHz Low Power ARM1176JZ-F	700 MHz Low Power ARM1176JZ-F
Ethernet	None	onboard 10/100 Ethernet RJ45 jack
Video Output	HDMI (rev 1.3 & 1.4)	HDMI (rev 1.3 & 1.4)
Audio Output	3.5mm jack, HDMI	3.5mm jack, HDMI
Weight	45 g (1.6 oz)	7 g (0.25 oz)

Figure5. Model A vs Model B+

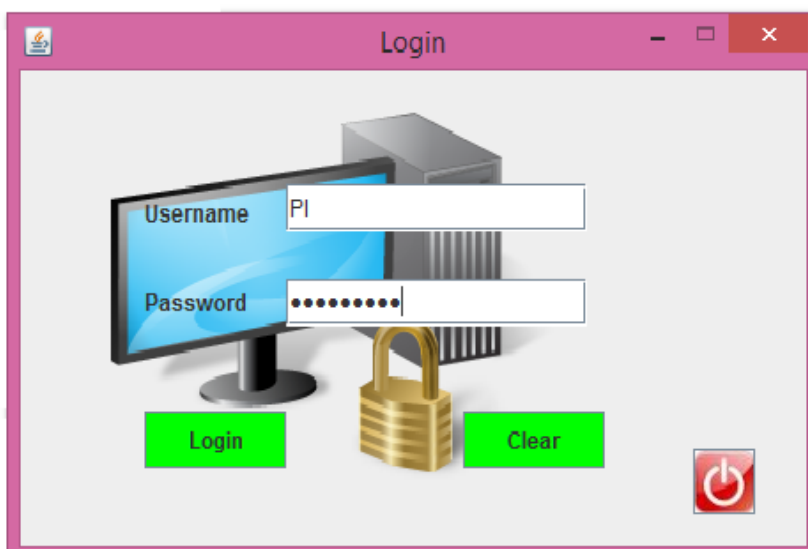


Figure6. Smart Lecture Delivery system Login

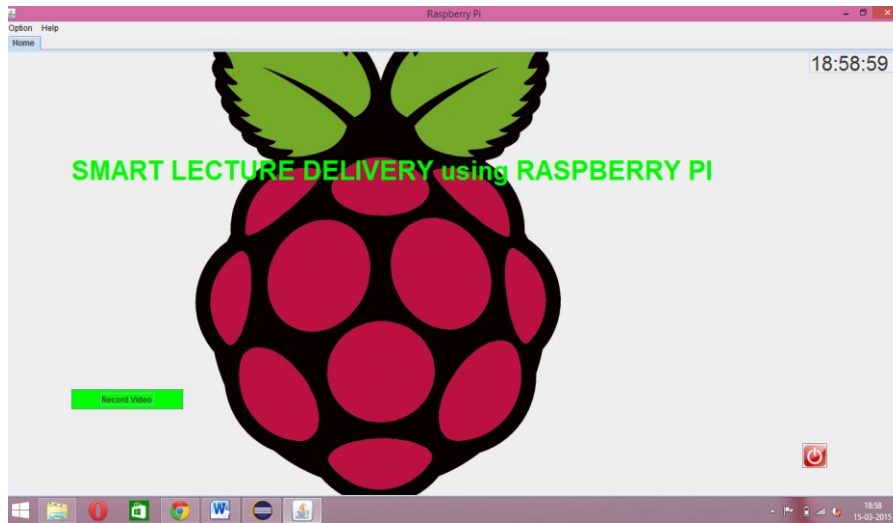


Figure7. Smart Lecture Delivering system GUI

V. CONCLUSION

This smart lecture recording system integrates Raspberry Pi, web camera and SD card, even the real time video feel is successfully achieved using the technology.

VI. REFERENCES

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