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Smart Room System

SMART WAY TO ENLIGHTEN THE WORLD

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**Acknowledgements**

First of all, we are very thankful to Almighty ALLAH who enabled us to complete this project.

We are pleased to acknowledge Dr.Asim Imdad Wagan for their invaluable guidance during the course of this project work.

We are also grateful to other members of the Muhammad Ali Jinnah University faculty who co-operated with us regarding some issues.

We have taken efforts in this project. However, it would not have been possible without the kind support and help of MAJU. We would like to extend our sincere thanks to all of you.

We are highly indebted to Sir Asim Imdad, Sir Rohan Aziz and Miss Ishrat Fatima for their guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project.

We acknowledge that this Smart Room System is fully prepared and fully eligible to run and to perform its all functions properly.

**ABSTRACT**

Smart Room System is a smart way to deal with home appliances. Idea, since the beginning, based on the development of a system that does only facilitate but also contains the smart look. The idea included many things to control all the appliances through a user-friendly smart GUI (General User Interface). Further, it was decided to enhance the functionality by implementing the sensors which can detect the lights in a room and then decides whether to turn lights On or Off. The idea, then, sketched on a paper and took place in flow diagram in a final shape.

In order to achieve the desired result, we came across the many obstacles (not really obstacles but learning points). It was decided to divide all the work into chunks and assigned to the group members according to their interest. Learning aspects included the implementation of GUI, which was necessary to learn before implementation. List down the hardware required and to search where they could be found. Study and research suggested many hardware but most importantly Raspberry pi. Working with raspberry pi required a strong study about its environment and interactions with other hardware as it is very sensitive. Afterwards, dealing with sensors seemed to be a great task as the return values from sensors was key things to program the desired functionality. Thus, these all hard work resulted the learnings, new ideas, implementations and creations.

**Initial Steps**

Initials includes several steps which are written below in their right order.

1. A good analysis of what we were going to develop.
2. Listing down the essentials required including hardware and many other aspects.
3. Consideration of the problems could be faced in future while working with modules and software programming.
4. Division of work according to the type of work and interest.
5. A strong Study about the working we were going to go though.
6. Centralization of all the learnings in order to make aware of every group member regarding their study.

**METHODLOGY**

1. A good analysis was put in process.
2. Discovery of the libraries for the Graphical User Interface and the functionality of sensors.
3. GUI was built through ***tkinter***.
4. Buttons and frames were put in widow to make GUI user-friendly.
5. Backend code was done and linked with Frontend code
6. Every button was given command from the Backend code to deal with the functionality of the button.
7. Set **Raspberry pi** and installed the OS required for the that.
8. Sensors were carefully installed on the hardware in order to retrieve the return from them.
9. Dealt with the return values of sensor on which behalf achieved the required result.
10. Put all them together and built a module for which the work was in progress.

RESEARCH

GUI

SENSORS

RASPBERRY PI

WORKING WITH TKINTER

LDR SENSOR

OS INSTALLATION

IMPLEMENTING BUTTONS

ASSEMBLY WITH HARDWARE

LINK

TESTING

**LEARNING POINTS**

Throughout the project we have had a broad category of learnings.

1. Raspberry Pi was the amazing thing to work with as it acted as the backbone
2. Sensors learning is also the another aspect that was all new for us.
3. Development of GUI is also best thing (Concepts of Programming polished here)
4. It was all amazing to work with all of this

**CONCLUSION**

Smart Room System is working as expected. It is now very useful as it has a good capacity to turn light the appliances On and Off through a well maintained GUI. It is now easy to turn On and Off as there is no need to be worried about dealing with hard physical buttons and all. Moreover, Smart Room System has a good approach to deal with appliances because LDR sensor is capable enough to detect light intensity based on which Lights are tuned on and off automatically.

**ISSUES**

1. Tkinter’s version problem was the first huddle.
2. Maintaining the grid system in tkinter was a little bit problematic.
3. Division of screen was one of the problem to deal.
4. Sensors connectivity with hardware was also the problematic.
5. Main GUI theme design was decided after a long deliberation.

**THANK YOU**