Ambient Student House

Project Report

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The aim of this report is to present our embedded systems project about an ambient student house in front of the board of directors and shareholders interested. We created six different systems in the student house in order to facilitate some of the activities of the inhabitants. Here are shown most of the advantages these embedded systems provide the students.

First of all, we created a smart lock system, which ensures the security and privacy of the house. Every inhabitant is given a unique key card upon registration, which opens his room automatically so that no one else can enter. At the end of their stay, the student is deregistered and the key card is deactivated until given to another person.

Then we introduced a smart air conditioning system. It works accordingly with the temperature and humidity in the rooms and keeps the students comfortable during the hotter days. In addition to that we implemented a smoke alarm, which is a vital part of every home. Once smoke is detected, the AC will try to get rid of it as fast as possible, a signal will be sent to the main computer in the student house and a loud alarm will be activated to alert the students.

Another thing we did was to create smart lighting in the hallway, which activates upon motion detection and the other one is an adaptive light system in the rooms, which works differently during different parts of the day. The inhabitants can also select previously configured modes for the lights such as study and party mode.

Lastly, we made a smart food management system to keep track of the food stored in the fridge so that it is easier for the students to keep track of what they have.

Clearly, there were a lot of components to this project. Therefore, our team split the tasks among each other, so that everyone can focus on a more particular problem. We managed to complete the tasks assigned to each member and also to help each other if needed. Then we looked over each system together and decided on what should be improved. Finally, we gathered to create the application for the reception desk, where students are registered and signals are received.

In summary, we managed to carry out this task of creating various systems for an ambient student house having completed every goal set in the beginning. This was accomplished through great organization and communication between us, as well as efficient team work. We feel satisfied with our work and we are hopeful that the project will prove successful among investors and users.



