Smart Home Automation System

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**Main Purpose of the Project**

* To have a control of our home devices through a mobile application.
* To monitor the appliances by data report which will be timely updated on the mobile application.
* To control the electricity usage of the devices based on the report of consumption of electricity.
* Automatic temperature controlling plus could be done by the mobile application.

**Project Description:**

* The project is based on ( IoT ) Internet of Things, which will mainly focus on the communication and integration of devices using some Wifi Modules, Arduino Boards, Raspberry Pi and many other modules which will help us to integrate the devices and then control them through a mobile application.
* This project will also include some services of Cloud by which we will be sending the data reports as well as some storage part will also be included in this particular project.
* The project will be including hardware like Wifi Modules, Arduino boards, Raspberry Pi and need based sensors like motion detection sensor, temperature controlling sensors and many other which will be needed for any particular device.
* It will also include a mobile application which will control these devices as well as it will be sending the data reports on the basis of device’s consumption of electricity which will help them to control the usage of electricity. The application will also be use to control over all devices which are to be integrated and operated smartly

**Functional Requirement:**

* The development of a mobile application which will control the devices in the system over the internet.
* User friendly and easy to use interface of the application that can be easily used by anyone who knows how to operate smart phones.
* To prevent unauthorized access to the system, a secure authorization panel will be developed to gain the access of system over the internet.
* Only the authorized user will be able to monitor and control the system through application.
* The application will be consisting different controlling options related to the system’s device load.
* An authorized user can be able to control the required devices through the application over the internet from anywhere.
* A user can also monitor the energy consumption through the mobile application.
* A user can also check the overall energy consumption as well as of a single device connected on the system.
* A user can manage the overall load of devices connected on the system through the application.
* The integration of hardware with mobile application with the help of Arduino/Raspberry pi board.
* The connectivity and control over the internet of the particular devices through Wifi Modular, Bluetooth transmitter/receiver and some other sensor’s.

**Extended Functionalities:**

* Cloud integration through application for intelligent control and automation of the system.
* Intelligent automation will be performed on the basis of data feedback from devices to cloud with the help of Arduino/Raspberry pi.
* Perform predictions on basis of routine data analysis of devices which will control them smartly in future.

**Non-Functional Requirement:**

* Data security
* Performance Efficient
* 24/7 Customer Care
* High Quality Back up facilities