

## Home Automation System

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Home automation refers to the automatic and electronic control of household features, activities, and appliances. Some components of an automated home may include the centralized control of security locks on doors and gates, appliances, windows, lighting, surveillance cameras and HVAC systems (Heating, Ventilation and Air Conditioning). Most existing advanced home automation systems require a big and expensive change of infrastructure since majority of them rely on wired communication. So it is required to change the entire wiring system of the house or wire again for the new home automation system. Obviously, wireless systems may be reduce the burden. And most of the existing systems are only capable of turn ON and OFF the home appliances but do not facilitate to see the states of the load in real time. The main objectives of the research are to design and implement a home automation system that is capable of controlling most of the house appliance wirelessly through a user-friendly web interface and indicate the status of them individually while eliminating the necessity of re-wiring. Any PC or mobile that has internet facility can be used to control it. And also to show the real time status on the web page. In addition, this home automation system is capable of turn on and off lights, control different appliance connected to wall plugs, door locking and unlocking, Shading Level Control and monitor the status. Central control unit required to be connected to the internet all the time since a web server is run by an Arduino Ethernet shield attached to it. All the sub-units are connected to main unit wirelessly via RF transceivers and they communicate both directions. The system was successfully implemented and tested.

**Keywords:** Automation, Surveillance, HVAC, Ethernet shield, Transceivers.