

## CORE FOUNDATIONS OF HOME AUTOMATION

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**Abstract:** Automation is an efficient method used in every field to reduce manpower, energy usage and efficiency of any system. So home automation is an automation which is used for controlling home appliances automatically with the help of control systems. It is used for controlling the indoor and outdoor lights, heat ventilation, air conditioning in the house, to control electrical and electronic appliance by using various control systems with an appropriate sensor. It sure is a bit expensive as it helps us makes life easy to us. products that make life easy are always expensive. Different people have varying preferences, so in that case always go for an automation system which will satisfy all your needs.

- 1) First generation: Wireless technology with proxy server example: Zig bee automation
- 2) Second generation: Artificial intelligence controlled electrical devices example: Amazon Echo
- 3) Third generation: Robot buddy who interacts with humans example: Robot Rovieo



**Keyword:** Home, Automation

### INTRODUCTION



Home automation can be simply explained as building automation for a home. It makes the operation of various appliances more convenient and saves energy. It involves automatic controlling of electrical and electronic devices through wireless communication. Early home automation begins with the introduction of labor-saving machines such as refrigerators, washing machines, water heaters etc. There are three generations of home automation:

### TYPES OF AUTOMATION SYSTEMS

Home automation depends on wired or wireless control. Basically home automation is divided into three types such as

- 1) Powerline based home automation
- 2) Wired or BUS cable home automation
- 3) Wireless home automation

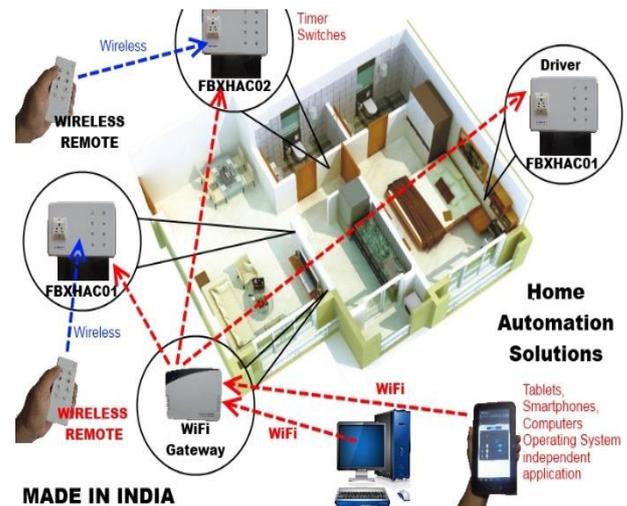
### POWER LINE HOME AUTOMATION

This is an inexpensive way of automation and doesn't require additional cables for information transfer. It uses existing power lines to transfer the data. One of the drawbacks is that, it involves a large complexity and necessitates additional converter circuits and devices.



### WIRED HOME AUTOMATION SYSTEM

The home equipment is connected to the main controller through a communication cable for those type of automation. Home equipment will be connected to actuators to communicate with the mother controller. The operations are centralized by a computer which continuously communicates with the main controller.



### APPLICATIONS

#### LIGHT CONTROL

Smart lighting system able to schedule the time's lights should be turned on and off, decide which room should be illuminated at specific times, can select the level of light which should be emitted.

#### HVAC REGULATIONS

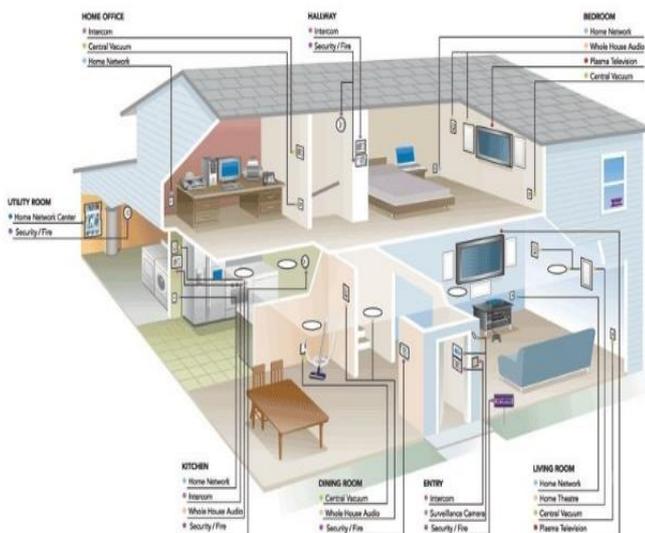
Heating and cooling home consumes fifty percent of energy cost yearly, this can be minimised by using HVAC regulations. Using automated HVAC we can reduce the heat when the room is unoccupied and can be increased or decreased at specific times based on schedule and occupancy.

#### LAWN IRRIGATION SYSTEM

A healthy lawn is a source of pride for most homeowners. Sky drop (sprinkler control system) is providing water regulation through real-time communication with local weather data. When two inches of rainwater is deposited on the lawn, the automated sprinkler detects the saturation and disables its scheduled watering. Even the system will be alerted to dry conditions and provides the amount of water without overwatering.

#### SMART APPLIANCES

For example smart refrigerators such as LG are Smart Thin Q, allow scanning grocery store receipts and keeping a list of your items and alerts you when an item is going to expire.



### WIRELESS HOME AUTOMATION

This is a developed method of conventionally wired automation which uses wireless technologies like IR, Zig-Bee, Wifi, GSM, Bluetooth etc for achieving remote operation. For example GSM based automation provides the controlling of home equipment's through SMS to the GSM modem.

## SECURITY SYSTEMS

Security is the primary focus of our home. Smart locker, smart alarm, offers a variety of features including motion detectors, video cameras and recording mechanisms.



## CONCLUSION

Home automation industry is still manufacturing and installing devices nearly thirty years after the technology became commercially available to homeowners. Wireless remote technology seems to be the up and coming industry standard, but with the rapid discovery of new technologies once considered out of the realm of possibility, expect some dramatic changes to occur in the home automation industry. Expect voice and sound recognition technology to allow homeowners of the future to control the electronic devices inside of their homes by merely uttering a sound.

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