

Real Home Automation

A. Dharanidharan¹, A. Pramotheekumar², R. Adalarasan³

^{1,3}Department of artificial intelligence and data science, Erode Sungunthar Engineering College (autonomous), Perundurai-638057

²Department of Physics, Erode Sengunthar Engineering College (autonomous), Perundurai-638057

Abstract

Real home automation is a system that allows for the remote control and monitoring of various household appliances and devices, such as lights, thermostats, and security systems, through a central hub or smartphone app. This technology can increase energy efficiency, enhance convenience, and improve overall home security.

General Terms: Remote access Systems, Mobile Applications, Web Applications and Home Automation System.

Keywords: Arduino, Physically Challenged, Home Automation, piezoelectric, Near-field communication (NFC), Radio-Frequency Identification (RFID).

1. INTRODUCTION

This explain how to make real home automation with full applied technology and make the property expensive and save the loss of energy, now a days they are saying there is a smart home but it consumes more power than normal.

Our motive: to prepare this for physically challenged person because the unit should be less 100unit or 100unit so electricity is free in India and so they can manage their routine efficiently than normal Let's take the hall for example

Smart home

- The fan can be operated through the WIFI or Bluetooth
- AC in hall be on by manually because the AC run in heavy volt so it can't be controlled with secondary devices and you need to turn off fan once the ac starts

Automized home

- The fan turn's on by itself through the outside and temperature of your body, By sensor (not Bluetooth or WIFI) shown in the Fig.1
- AC in hall will be turned on (by IR placed in that room) once the sensor reports it's too hot out till the room temperature get reduce the fan will be on (it happens only when the room detect motion)

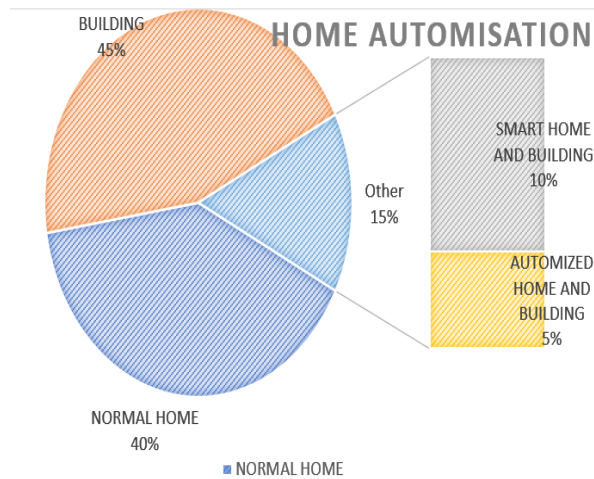


Fig.1. Pi-chart of Home Automation

2. METHODOLOGIES:

2.1 How can we upgrade the house:

We can use smart switches, Smart fan, Smart light Smart plug point, Bluetooth module, WIFI module, Etc...

2.2 NFC



Fig. 2 Usages of NFC

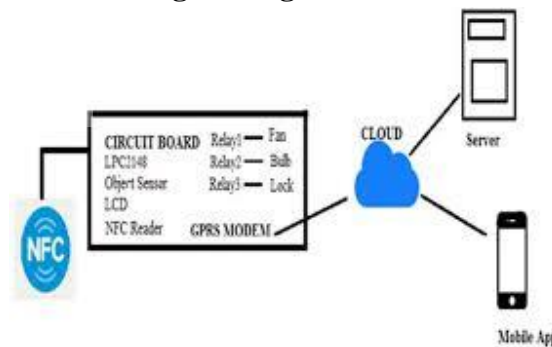


Fig. 3 NFC in automation

Now we are gone a use it for those who are physically challenged, they can open door so the NFC (Fig. 2 & 3). Tag near them they can place their phone on the tag opens the door for them or even it will send the message to the car garage to open the door and if they have poor memories the nearby NFC makes them remember

Now for a normal people they can schedule a time to do in a place once it completes by the tag it gets registered for example through the garbage disposal, feeding pets in home, placing objects in right place, Etc...

2.3 Radio-frequency identification



Fig.4 RFID set

Radio-frequency identification uses electromagnetic fields to automatically identify and track tags attached to objects. An RFID system consists of a tiny radio transponder, a radio receiver and transmitter

Now it can be used by the relative who is close to us, while the come to our home and we just went out for a little work if they have their card (Fig.4) they can access certain places like portico, hall, toilet and they have restrictions to get into the dining room, bed room, prayer room, Etc... By programming cards individually, we can make different access and it's not only for home we can use for hostel, mess, classroom attendance, Etc...

2.4 how automation is made:

We just made the sensor to be connected to the nearest sub main receiver node which send to the main server to store data

Advantages:

If there is any problem we can rectify easily, the node is cheaper than main server we can able to do in cloud storage too but it's not that secure of data of your entering and exit log of rooms and your personal place (secret room)

2.5 Bluetooth and WIFI Based Home Automation

you can even take the home under your control which is manually by web application Applications or like phone apps this feature is enabled for children because some many not able to adapt to AC which turns on automatically which is known as Remote access Systems.

2.6 Automation for patients:

The program be used in all hospitals so a safe and easy protocol will be maintained and if there's eye operation patient, he should not see lighter source before and after operation so our program makes the brightness under control by making the light present in room to dim and closing the window when there is heavy sun light by using LDR (also known as photo resistor)

And if the patient is unable to walk the nearby NFC tag sends message to a moving chair which run in the basic of obstacles avoider using ultrasonic, IR, where ultrasonic checks for surrounding obstacles and IR follows the line to the patient's room where the line consist of RFID it scans it to reach correct destiny

2.7 tingle technology (my own creation):

This is the software which we are doing right now the name is inspired from the spider man what has a sense of correct prediction which made him easy to lead his life in that concept we are doing this for the next generation and for our country senior citizens which always monitors the heart beat and the activities which will be gathered from there waist watch and it will be maintenance will be done in person server and it can't be hacked that soon because we are making the firewall for our each system for free of costs and this will take some more month to get published because we are training the AI to think in its own.

2.8 Invention process:

We have made using our own creativity which rise in hope of To Serve for the nation while we sleep, play, travel, watch movies, this took us long days to get research is our really exist and how we can make it easier and make people use this in their reality. As we were in the process, we made different tests for its success and it passed in solo test and still we did not run it in buildings.

2.9 Invention design process:

we are able to make this true by:

I. As I own a project making company, we use to create project for small- and large-scale business so small scale like college and school we gained knowledge by that II. As I am alone, I use to make some creative connection which make some click to make a motive for next one.

2.9 Let's see the thought HOW I have made home automized

- ENTRANCE
- PORTICO
- HALL
- PRAYER ROOM
- BEDROOM
- BATHROOM
- KITCHEN
- DINING ROOM
- FLOORS

PLACE OF MAIN MODULE	PLACE IT HANDLES (1)	PLACE IT HANDLES (2)	PLACE IT HANDLES (3)	PLACE IT HANDLES (4)	RECEIVING MODULE	SENDING MODULE (HALL OR SERVER)
HALL	ENTRANCE	DINING ROOM	BED ROOM	FLOORS	SUB MAIN	MAIN
DINING ROOM	ENTRANCE	DINING ROOM	BED ROOM	FLOORS	MAIN	SUB MAIN
BATHROOM	HALL EXIT	BATHROOM ENTRANCE	BATHROOM EXIT	FLOORS	MAIN	SUB MAIN
BED ROOM	HALL	DINING ROOM	BED ROOM	FLOORS	MAIN	SUB MAIN
FLOORS	ENTRANCE	DINING ROOM	BED ROOM	FLOORS	MAIN	SUB MAIN

Table. 1 place of module installation

Let’s see that how I have MADE home automized (table 1)

Every system has one main module to transfer data and every sub module has its own sensor of communication.

2.9.1 ENTRANCE

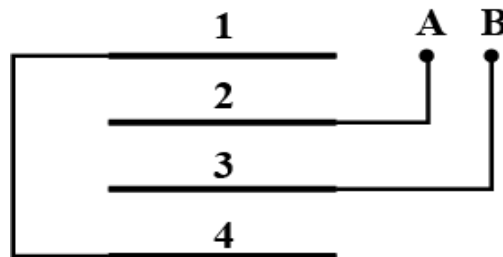


Fig. 5. Conductivity of metal plates

This is made using basic laws of physics. Every object has weight through the gravity. Metals are conductive. So now every tile has a piezoelectric so it generates electricity and sends to the battery and the entrance has its own metal plate which touches on the weight of people standing in it produce sound in door bell (Fig 5)

2.9.2 PORTICO

The car has NFC tag which allow you to get inside the gate while you scan. The light over the fence of portico, The information to the house member.

2.9.3 HALL

It is connected to the main frame which sends the message to the all equipment and storage unit and every room, Maid access through only few places, House member can access through the max place, Guest can access through some place This make the house secure and strong from threats

2.9.4 PRAYER ROOM

This is a spiritual room where no maid is allowed and kids alone so it has same tech of secret room

2.9.5 BEDROOM

It can be accessed through the phone or your motion on the place of the NFC tag I will explain you now about it Every one need privacy in some places so some places can be manually off for particular time

2.9.6 BATHROOM

Turn on by motion detection out the room which not depend on any main or sub main which is totally out of record

2.9.7 KITCHEN

To make the room clean using NFC tag which sends the message to main system and make the robot clean the room for lunch because the robot will clean the hole house at morning which is for breakfast and evening for night dinner, The fridge installed in every room will send message to maid in house to refill when it is over

2.9.8 DINING ROOM

Auto light on by motion and thermal heat sensor, turning on fan or ac from gathered information, sending message to all in other room from a single key of NFC to gather for food.

2.9.9 FLOORS

Every floor has its own communicating main module which send its own, everything is Maintenance will made in local host which has own secure line transmission, Secret room has its own tech like short range Bluetooth controls system and random generating code, transparent solar roofing (Fig. 6).



Fig. 6. Transparent solar panel

2.9.10 Howe wall cleaning robot



Fig. 7. Wall cleaning robot

It cleans the windows and the wall inner and outer so it looks clean and dusty free surrounding if you have swimming pool (fig 7) it cleans that too in the feed program its eligible to uses every ware but it's not water proof.

2.9.11 Extending window to balcony



Fig. 8. Extending balcony

It helps to relax in outer scenario when the balcony extends it made up of glass roofing so you can see the sky (Fig 8) when you sleep there and it does not occupied space of your routine place it creates its own place.

2.9.12 Extending wall steel rope

this tech helps you to take the dry clothes when you went out by manually and automatically using water moisture sensor and its even helpful if the rain come it automatically scenes and get the cloth in to the roof automatically

3. Piezoelectric electricity generation

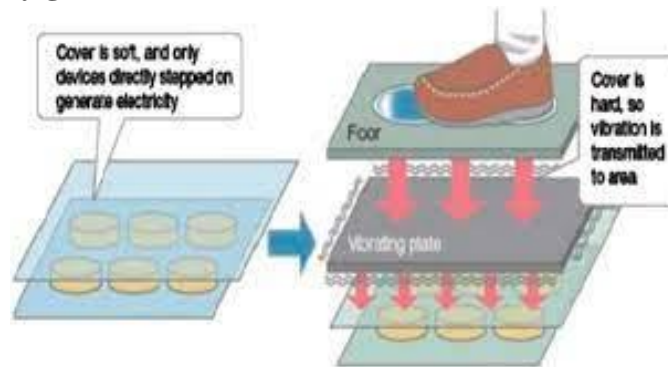


Fig. 9 Piezoelectric model

A piezoelectric crystal is placed between two metal plates. At this point the material is in perfect balance and does not conduct an electric current. Mechanical pressure is then applied to the material by the metal plates, which forces the electric charges within the crystal out of balance (Fig 9). So, when we install it in most working place it generates electricity and which can be used for rough use like stares light and door bell

By installing solar appliances, we can save electricity which reduces the electricity bill payment

4. My Invention in Use!

People who used my invention they said it is very useful for their life

4.1 Project we did namely:

- Smart home for Blind
- NFC home automation
- RFID home management for guest
- Gaining access through fingerprint for home
- Global activation of daily routine
- Smart room for Eye operation patients
- Smart robot for leg fractured people
- Public mask detection and fine collecting ideology
- Seat belt detection and fine collecting thought number plate
- Automatic watering plant which happen through the rain fall occurring event and making decision drip or sprinkle water supply system
- ETC...

As a beginner you can go with: Uno or nano flavours because it's easy and known as developer board.

Uno uses a regular USB port while Nano uses a Mini USB port. Both Nano and Uno have a clock speed of 16MHz and the memory also remains the same. Nano has a flash memory of 32kB with a preinstalled bootloader while Uno is 32kB without a bootloader. Static Random Access Memory is used in Arduino systems.

5. CONCLUSION

Based on surveyed, advantages and drawbacks, this paper is presents the features to be possessed by an ideal system for home automation with remote access. Only the Internet can give access and it can be made available at all times. This will give rise to a standard access method for the home appliances using the Internet protocol and local host is also available. The user interface is not there everything are automatic until it taken into manually control. So that all people can access the system. Future scope for the home automation systems is I created tingle software (2.7) which make all automatic no more tech only upgrades so More energy can be conserved by ensuring occupation of the house before turning on devices and checking brightness and turning off lights if not necessary. Smart interaction with home

6. REFERENCES

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