

The graphic features a central white circle with the text "Alpha House" and "Home Automation & Control System". This circle is surrounded by a thick, light gray ring with a fine, radial pattern. The entire composition is set against a light gray background with various geometric and technical motifs. On the left and right sides, there are circular elements resembling gears or control knobs, each with a curved arrow indicating a clockwise direction. These are connected by thin lines to small circles. At the bottom left and right, there are vertical rectangular blocks with horizontal lines, also connected by lines to small circles. The overall aesthetic is clean, modern, and technical, suggesting a high-tech or industrial theme.

Alpha House

Home Automation & Control System

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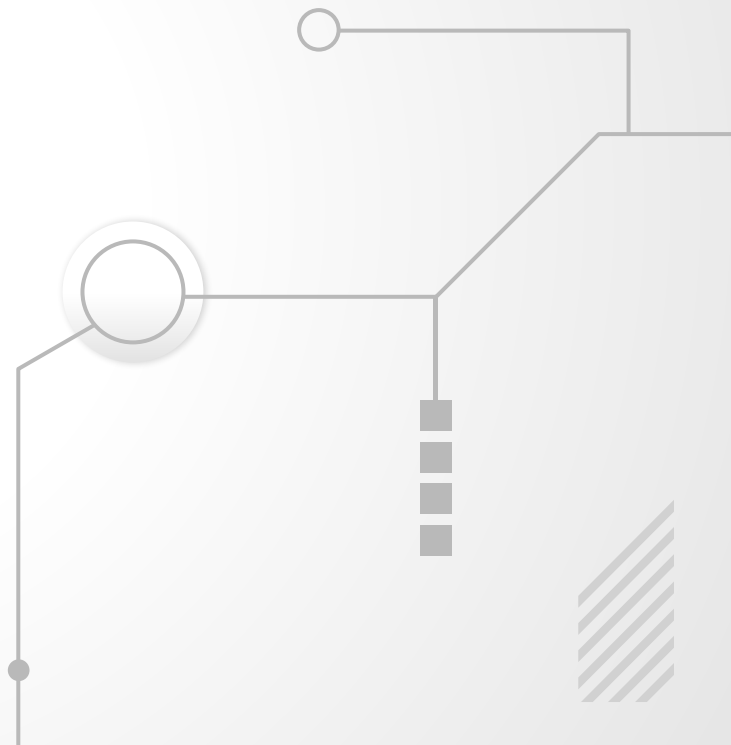
Constraints & Future Work

What Was Hard & What's
Next ?



Motivation

What Made Us Create This Project



Why This Project

1

Convenience To Be Delivered To Disabled People

2

Energy Efficiency Easier To Be Automated

3

Emergencies Sooner To Know Easier To Handle

4

Safety Provide Security To Any House

5

Luxury It's Fancy To Have An Automated House



Implementation

Subsystems, Components & Mobile Application



Light System

This System Consists Of 2 Types Of Lights, Indoor & Outdoor That can be managed Automatically Or Manually.

How Does It Work?

- If Outdoor Lights are Automated, Their Lightening Intensity Is Determined By The Reading Of The LDR.
- If NOT, Their Intensity Is Determined By The User Via Application.
- Transition By Automation & Custom Control Can Be Made By The App.
- Indoor Lights are ALWAYS manually controlled by the user.

Tools Used

- LEDs
- Photoresistor (LDR Sensor).
- Resistors.



Air Conditioning System

This Is The System Responsible For Maintaining a Certain Temperature Level. Fully Controlled By The User.

Work Principle

- Certain Temperature Threshold Is Set By The User.
- If Temperature Readings Exceeds This Threshold, The Fan Works On A Level Also Set By the User..
- Fan Working Levels Range From (1 - 3) & If It's Zero The Fan Is OFF.
- Temperature Being Lower That The Threshold Makes The Fan OFF Automatically.

Tools Used

- Humidity & Temperature Sensor (DHT11).
- DC Motor (Represents The Fan).
- Motor Driver IC.



Emergency System

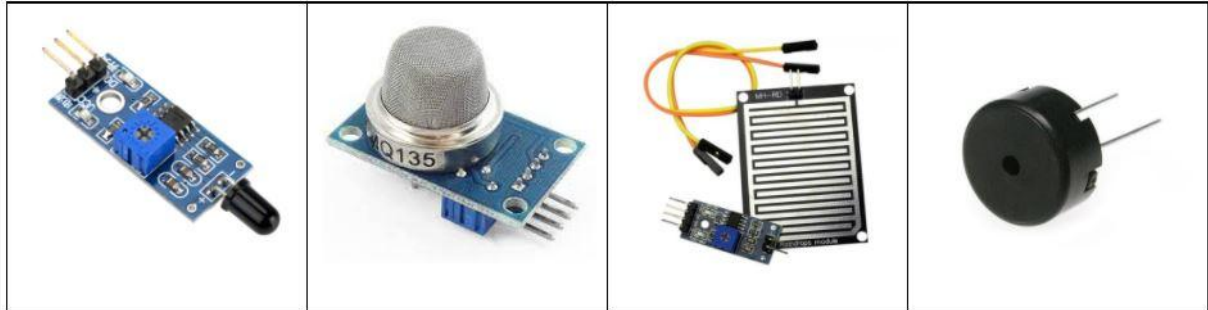
System For Detecting Emergencies As Soon As Possible, In Order to Handle Them In Best Possible Way.

How Does It Work

- If The House On Fire OR On A Gas Leakage The Alarm Is ON.
- If It's Raining, The Window Will Be Closed To Prevent Rain From Coming In.
- If There's Gas Leakage The Window Opens.

Tools Used

- Gas/Smoke Sensor.
- Raindrops Sensor.
- Flame Sensor.
- Piezo Buzzer.



Door, Window, Garage

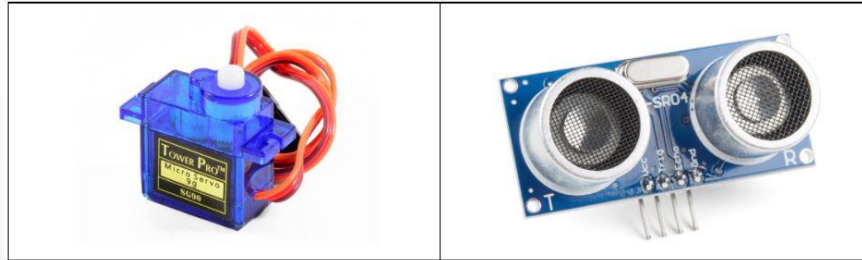
Opening & Closing Window, Door, And The Garage Is Handled Through This System.

How Does It Work

- Main Door & Garage Door are Controlled By User Through Mobile App.
- Window Is Closed On (Rain) Open On (Gas) Or Under User's Control.
- If Some Car Gets Near Garage, A Confirmation Is Needed By The User To Open Garage.

Tools Used

- 3 Servo Motors (Each For A Certain Door/Window).
- Ultrasonic Sensor To Detect Any One Coming Near The Garage.



Security System

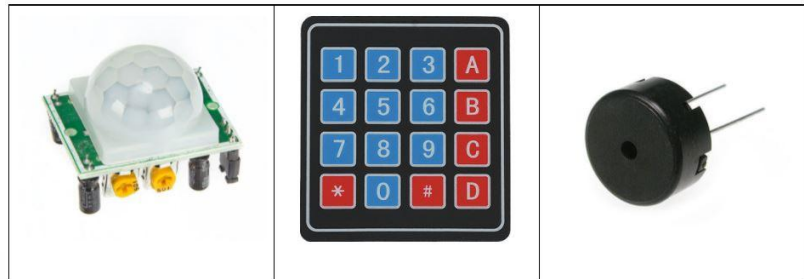
This System Notifies The User In Case to Robbery Or Steal Attempt Inside The House.

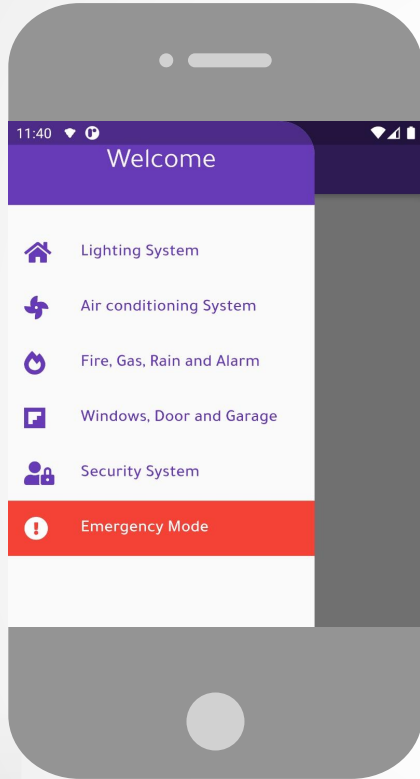
How Does It Work

- A Security System Can Be Activated Or Deactivated By the User.
- If The System Is Active & A Certain Motion Has Been Detected The Alarm Runs.
- Alarm Can Be Turned OFF Later By Deactivating The System Through Keypad OR Mobile App.

Tools Used

- PIR Sensor (Motion Detector).
- Keypad 4 by 4.
- Piezo Buzzer (Alarm).





MOBILE APP

This Application Is The Software Interface That Enables The User To Monitor & Control The House Remotely



Constraints

What Was Hard & How It May Be Solved

.....

Constraints



Time Limit

**Data Transfer &
Response Time**



Sensitivity Control

Scenarios





Future Work

New Fire Sensor

Fire Sensor With Analog Output

Arduino Mega With WiFi

To Eliminate Data Transfer Between Multiple Components

Software Improvements

To Give User The Ability To Call Fire Station, Police





THANKS!

Dr. Abdullah Rashid

And Everyone Helped Us Complete
This Project Even With a Single Word.