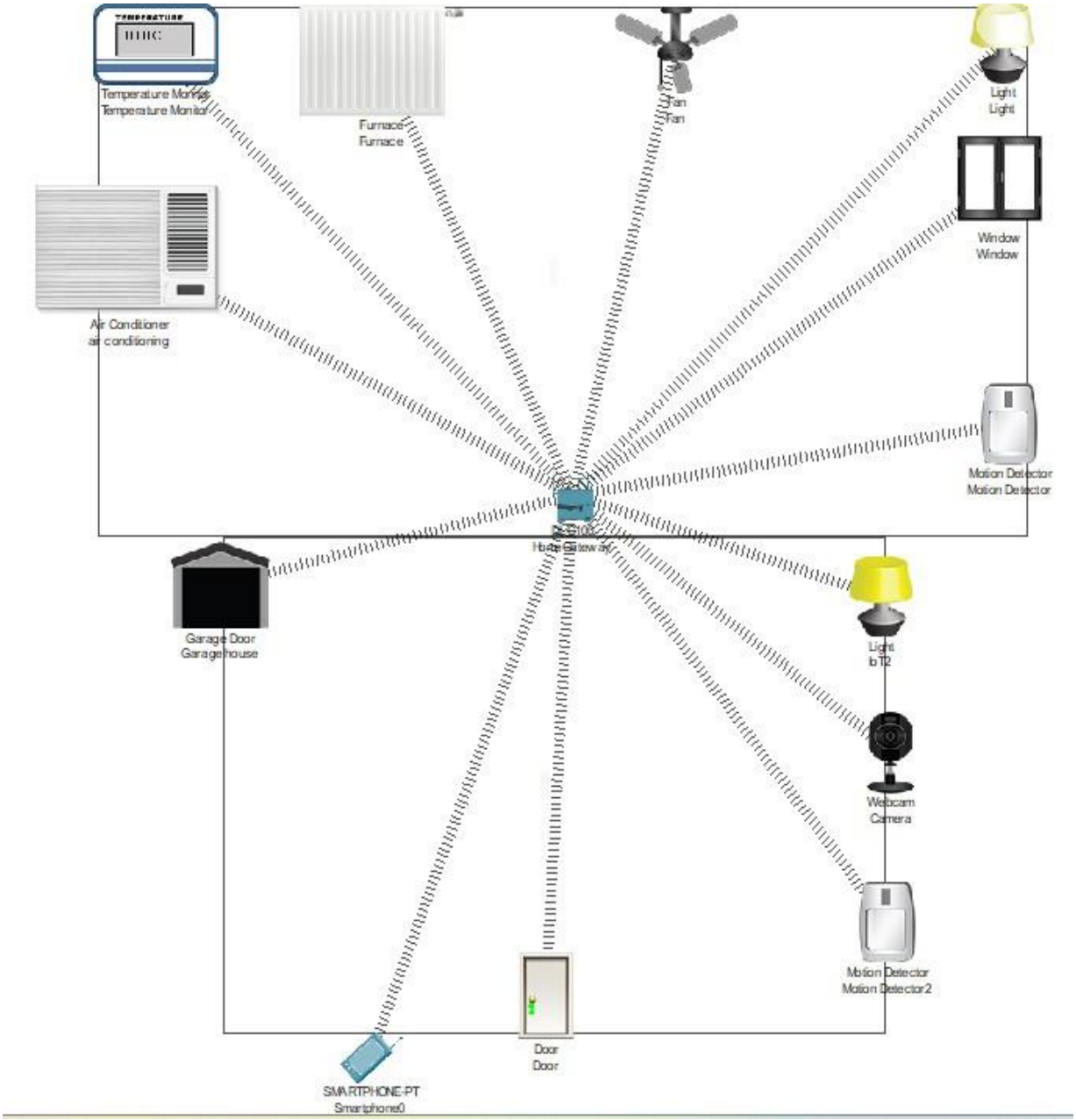
Contents

A. Introduction:

I was assigned by the company to design an IoT system that meets all project requirements. It will include a blueprint for creating the system, how IoT systems work, IoT devices work together, and how IoT devices work and interact with each other, survey questions and outcomes. results received from users. And finally, my review of the system based on user comments

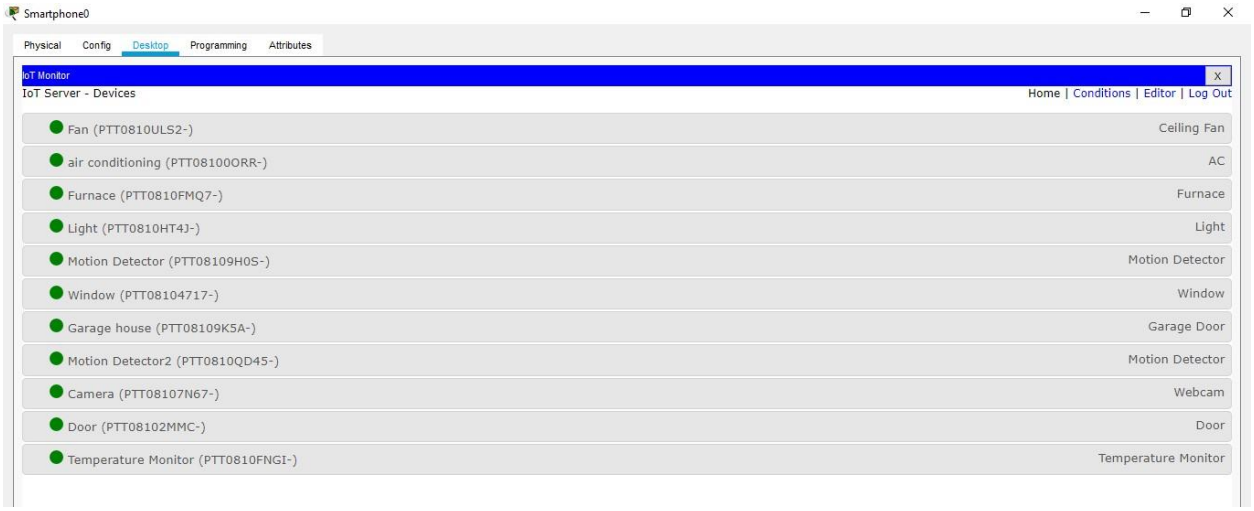
B. The smart home solution:

After looking through the tasks and requirements assigned to the project, I have an idea of a smart home, with all wirelessly connected IoT devices and that's my initiative.

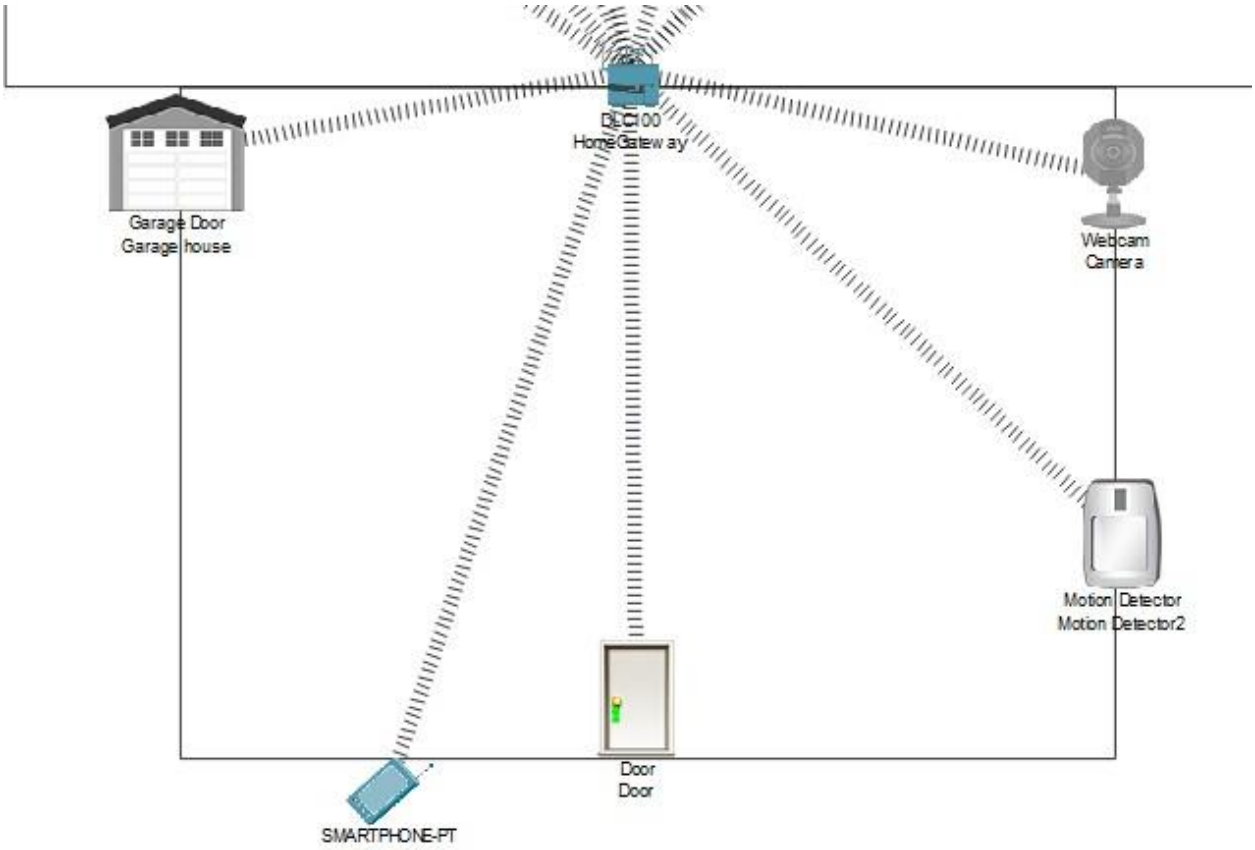


In this house, this network consists of a homegateway that serves as a "modem" connecting to all IoT devices, using a smartphone as a "remote control" to monitor any single IoT device when linked to the home gateway.

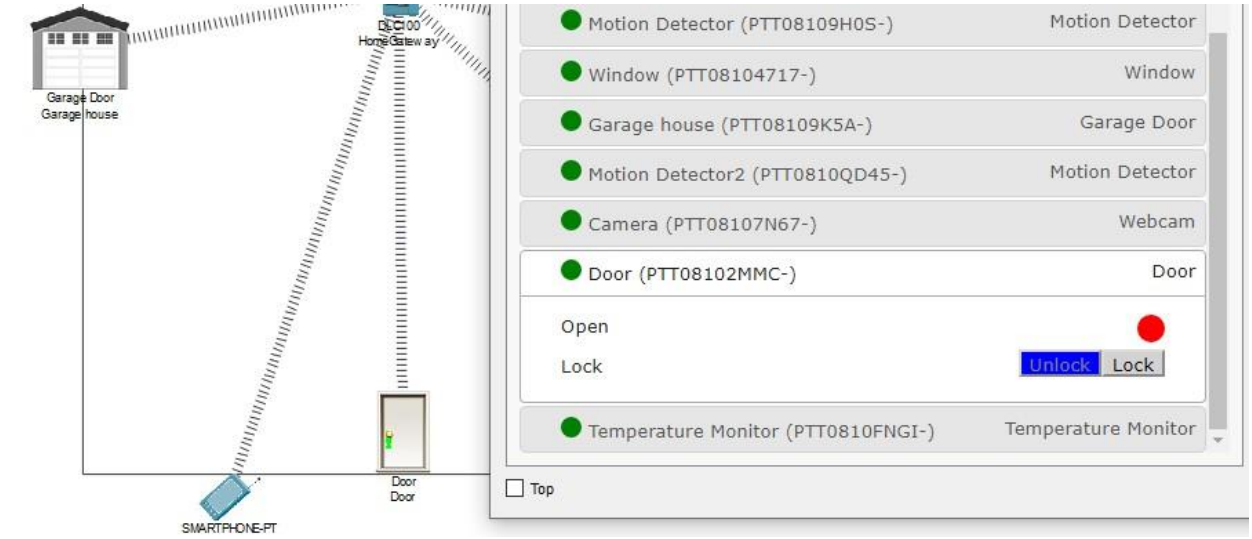
But apart from manually controlling each device from the smartphone, I have used the Home Gateway Conditions segment to automatically make IoT devices work and perform other tasks that make human-to-computer unnecessary. We need to open the web browser before entering the Conditions section of the Home Gateway and go to the IP address of the Home Gateway, in this case, 192.168.25.1 with "admin" as username and password

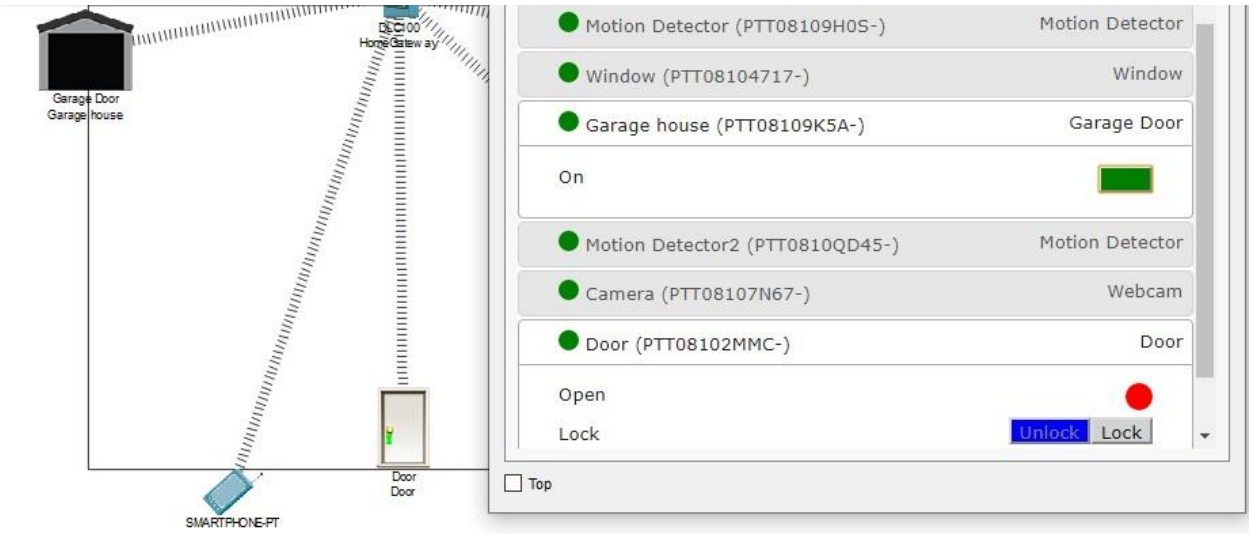


And let's look at the 1st room first:

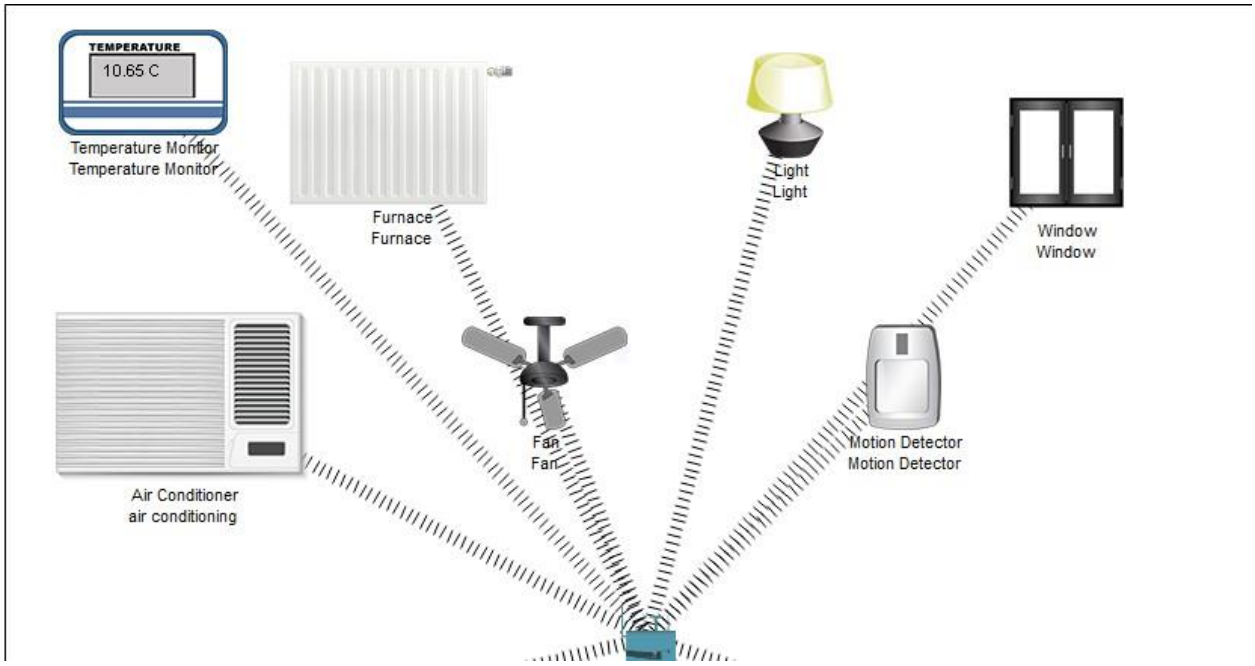


There is a garage door in this room and a regular door, so we can open the regular door without a key or open the garage door by simply connecting to smartphone and unlocking the Home Gateway. The picture below shows the usual unlocking of the door, but the same goes for the garage door.

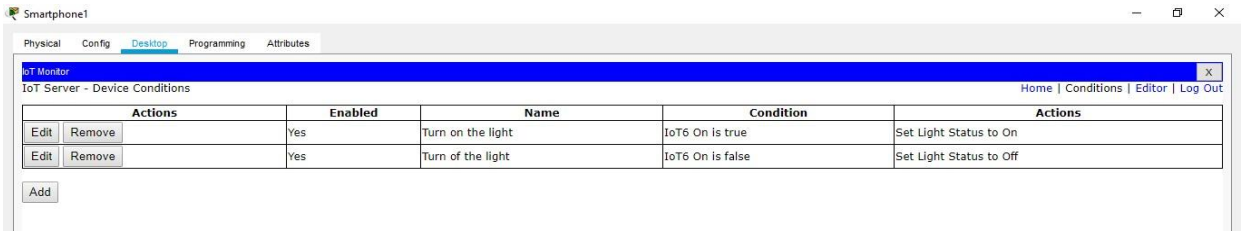




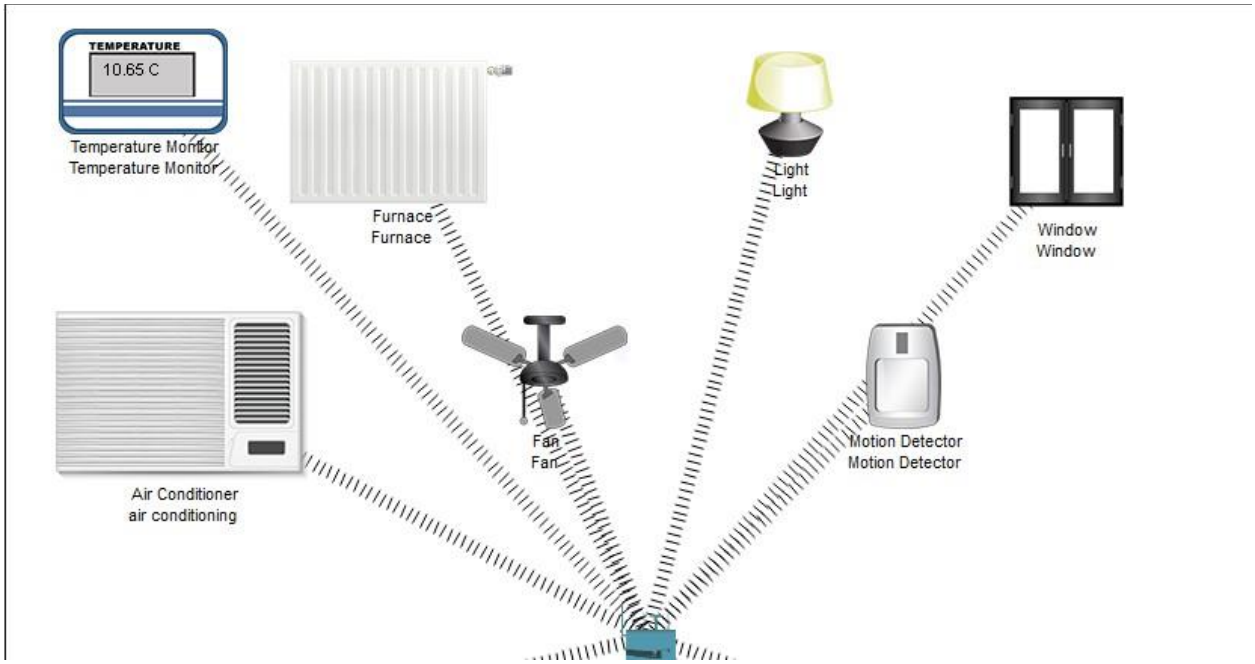
Then there's also a motion sensor and a light in which the light will automatically switch on when the motion sensor detects someone in the house, and when no one is in the house, the light turns off. The picture below shows that when my mouse is detected by the motion sensor, the light turns on



Here are First Space Conditions in the Home Gateway:



Now we pass into the 2st room to inspect:



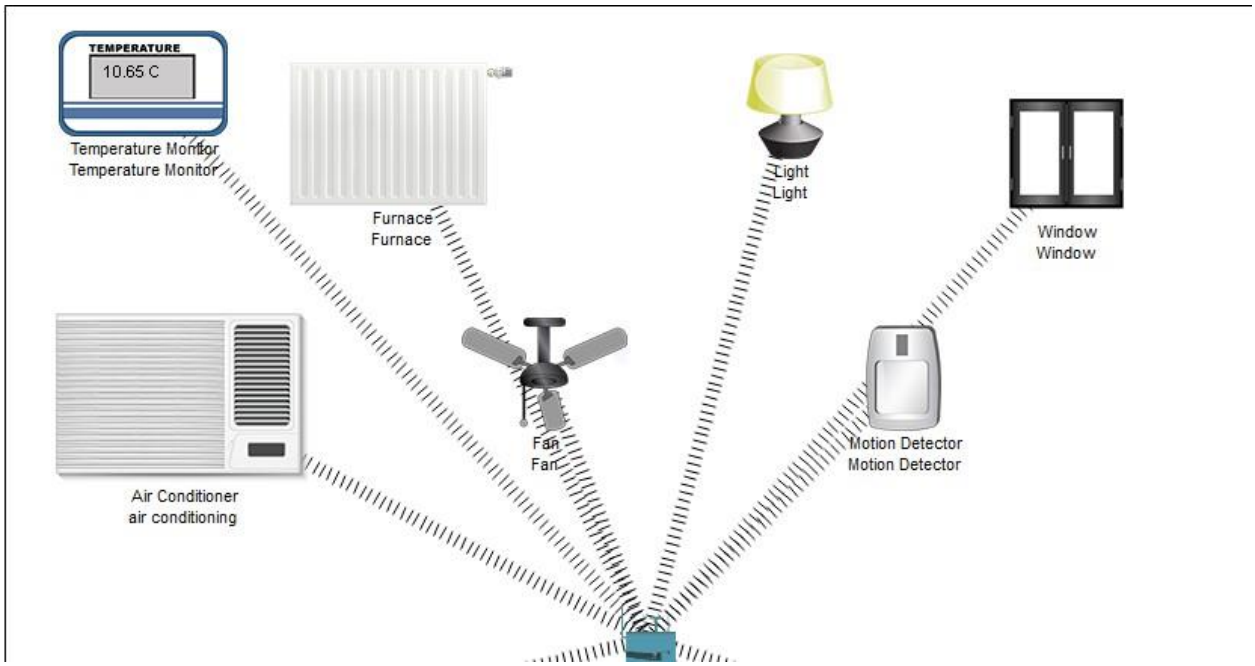
This room consists of a temperature sensor that senses outside temperature, then returns temperature values to the home gateway, so the home gateway can tell other IoT devices like the furnace, AC, Fan, Window to operate when that temperature matches. And this room also has a motion sensor and a lamp, the same as the first room This is how the room's IoT devices function, by looking at this status table in the home gateway's Status section:

Actions	Enabled	Name	Condition	Actions
Edit Remove	Yes	2st floor set 21 to 24	Match all: • Temperature Monitor Temperature is between 21.0 °C and 24.0 °C • Motion Detector2 On is true	Set Fan Status to Low Set Window On to true Set air conditioning On to false Set Light Status to On Set Furnace On to false
Edit Remove	Yes	2st floor set 24 to 229	Match all: • Temperature Monitor Temperature is between 24.0 °C and 29.0 °C • Motion Detector2 On is true	Set Fan Status to High Set Window On to true Set air conditioning On to false Set Light Status to On Set Furnace On to false
Edit Remove	Yes	2st floor set more than 29 degress	Match all: • Temperature Monitor Temperature > 29.0 °C • Motion Detector2 On is true	Set Fan Status to Off Set Window On to false Set air conditioning On to false Set Light Status to On Set Furnace On to false
Edit Remove	Yes	2st floor set 15 to 21	Match all: • Temperature Monitor Temperature is between 15.0 °C and 21.0 °C • Motion Detector2 On is true	Set Fan Status to Off Set Window On to true Set air conditioning On to false Set Light Status to On Set Furnace On to false
Edit Remove	Yes	off 2st floor	Motion Detector2 On is false	Set Fan Status to Off Set Window On to false Set air conditioning On to false Set Light Status to Off Set Furnace On to false
Edit Remove	Yes	2st floor set lower than 14	Match all: • Temperature Monitor Temperature < 14.0 °C • Motion Detector2 On is true	Set Fan Status to Off Set Window On to false Set air conditioning On to false Set Light Status to On Set Furnace On to true

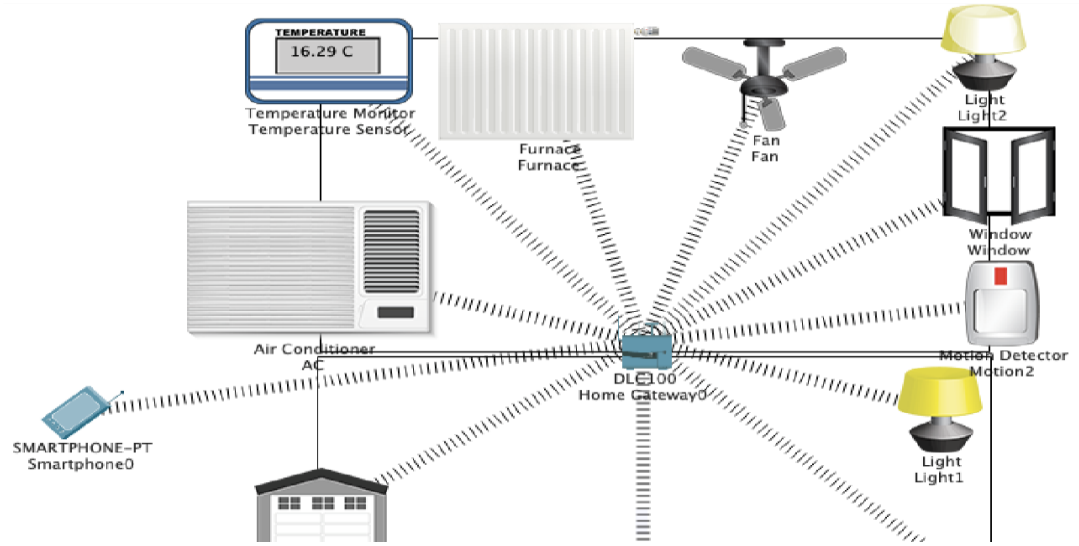
Add

- When no one is detected in the room by the motion sensor, everything will be switched off: fan off, the window closed, air condition off, lamp off, furnace off
- When someone is detected in the room by the motion sensor. The light is switched on, and: - With the temperature going below or equal 14°C: Fan off, Window closed, Air Condition off, Furnace on
  - With the temperature going between 15 to 21°C: Fan off, Window open, Air Condition off, Furnace off
  - With the temperature going between 21 to 24°C: Fan low, Window open, Air Condition off, Furnace off
  - With the temperature going between 24 to 29°C: Fan high, Window open, Air Condition off, Furnace off
  - With the temperature higher than 29°C: Fan off, Window closed, Air Condition on, Furnace off
  - Here are the images represent how the system in the second room works:

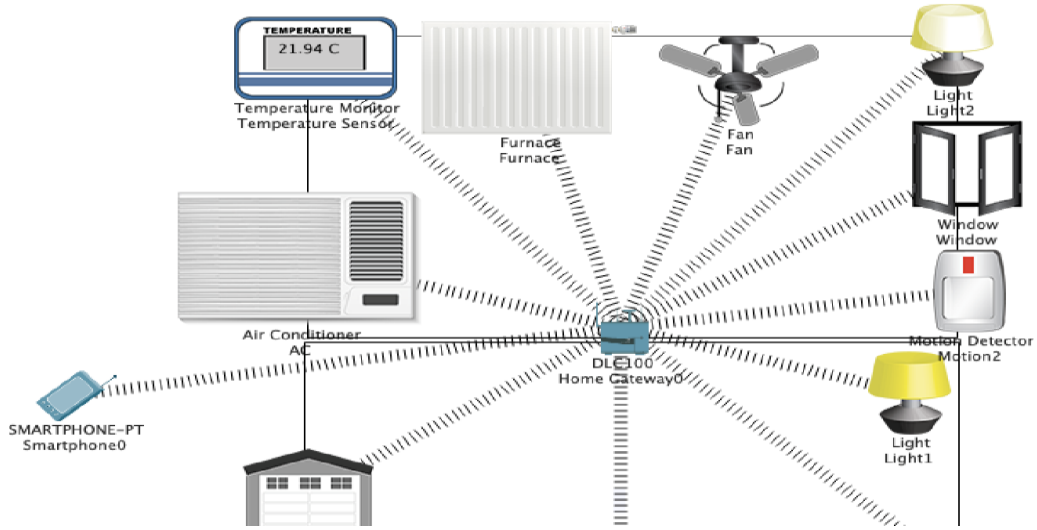
When temperature is below 14°C: (red indicator next to the furnace shows that the furnace is running)



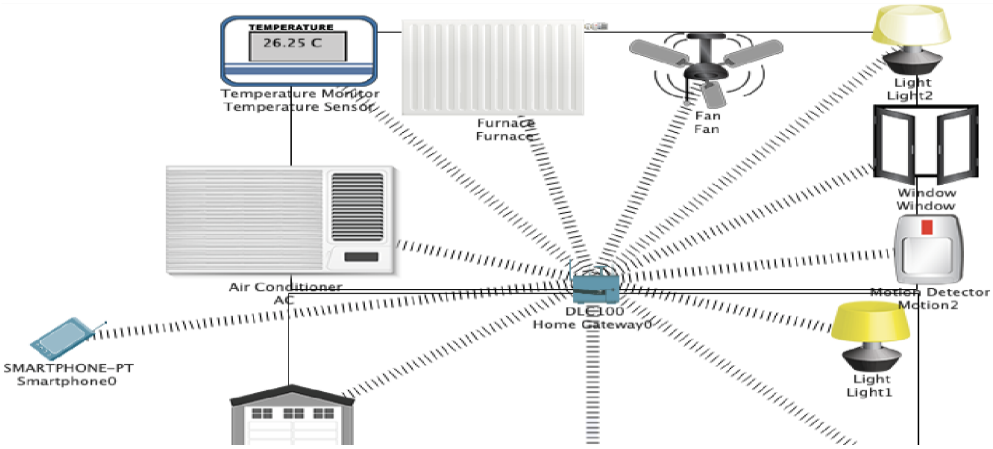
When temperatures vary between 15 and 21 ° C:



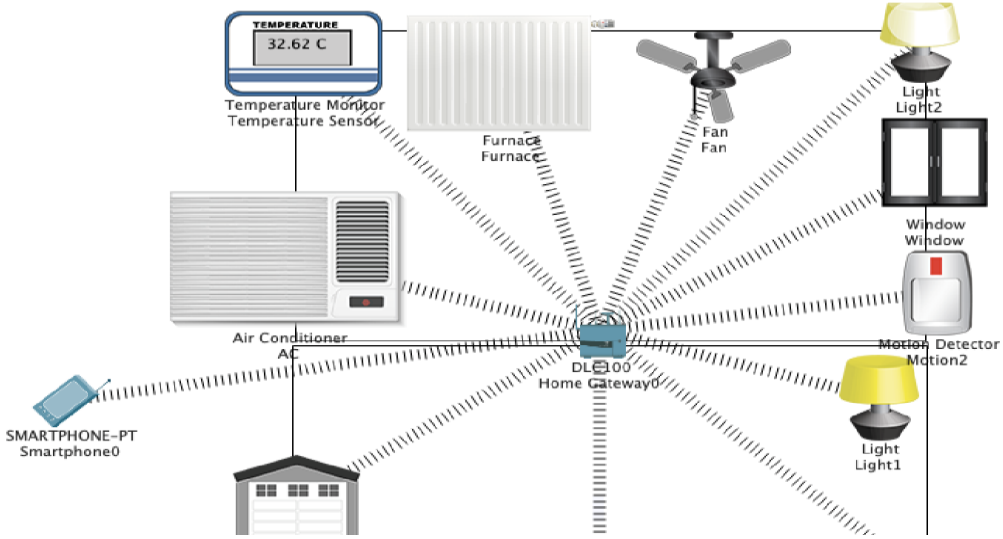
As temperature ranges from 21 to 24 ° C: (Spinning the fan)



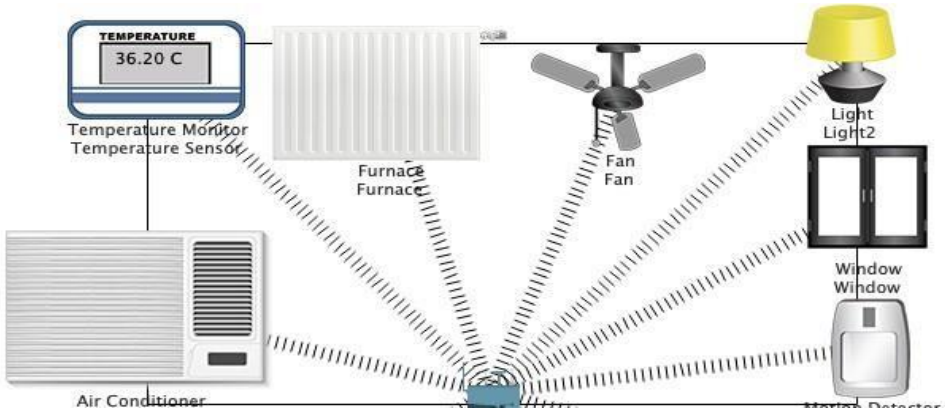
As temperature ranges from 24 to 29 ° C: (the fan spins faster)



If the temperature is above 29 ° C: (The small red indicator in the AC's bottom right corner means the Air Condition is working)



When nobody is in the room: (even if the outside temperature is high, nothing will work)



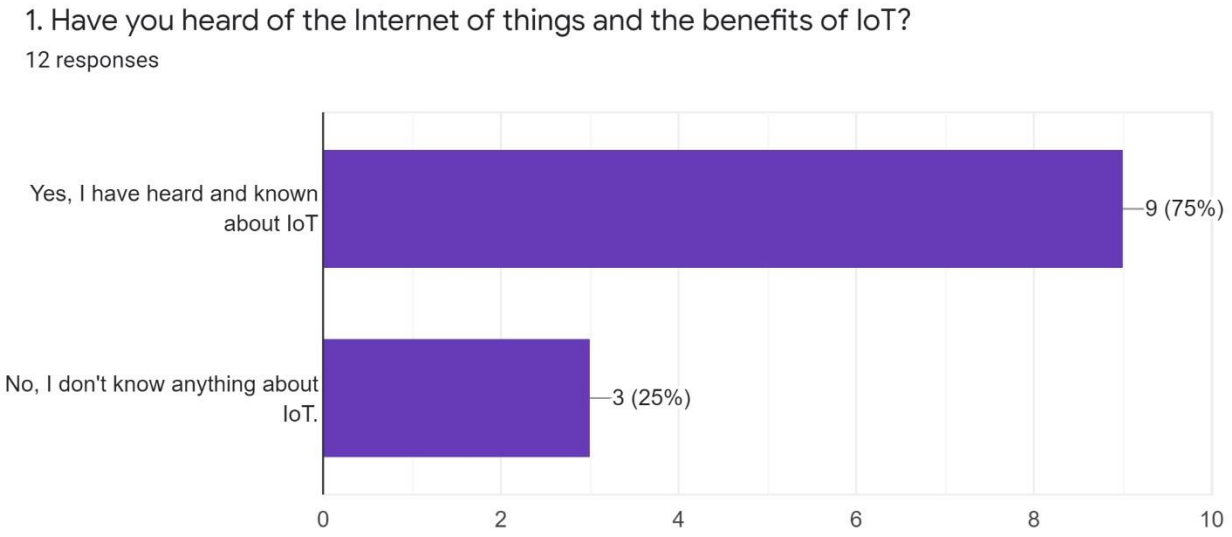
C. The survey and answers:

I did a survey asking random people on the internet and all my friends to judge the concept of my system, with 8 questions, showing them the picture of my system, and 10 answers.

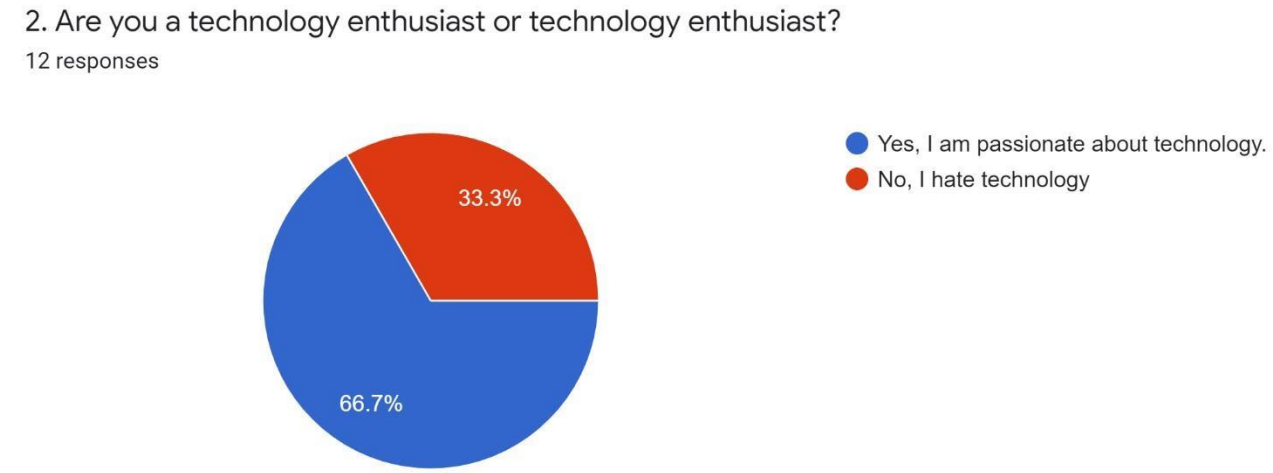
Inside the survey my questions were:

1. Have you heard of the Internet of things and the benefits of IoT?
2. Are you a technology enthusiast or technology enthusiast?
3. Do you like this IoT system?
4. If there is a chance do you want to apply this IoT system to the house you are in?
5. What are the reasons you are not satisfied with my IoT system and the changes you want to install in the IoT system?
6. If tested for the IoT system, which features would you like to improve?
7. How much would you like my system to sell at a price?
8. Do you want me to simplify the IoT system? and what age do you think this system is suitable for?

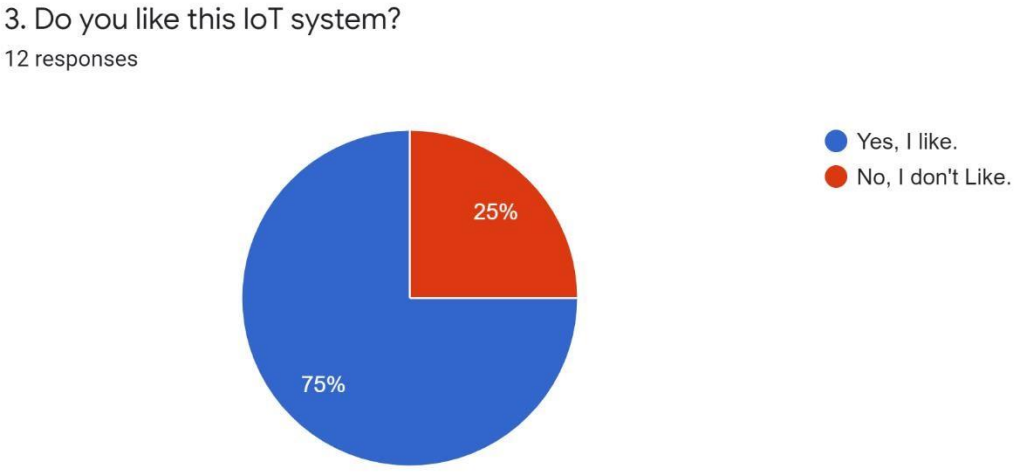
Here are the answers:



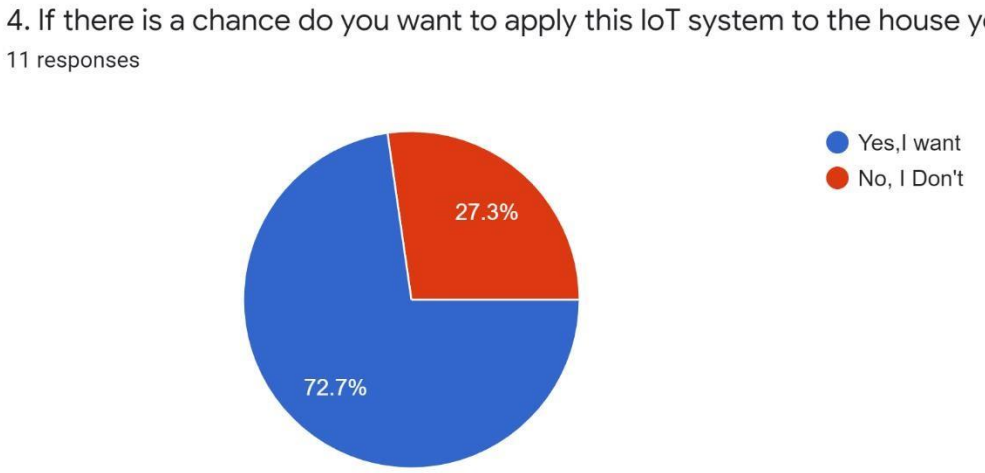
The survey showed that 9 respondents had yes and had known about the IoT system and 3 respondents did not. From the survey, the results show that most people know about IoT



When I came to the next survey about passion for technology, I got 33% out of 100% of respondents who dislike technology and 66.7% answered that they were passionate about technology.



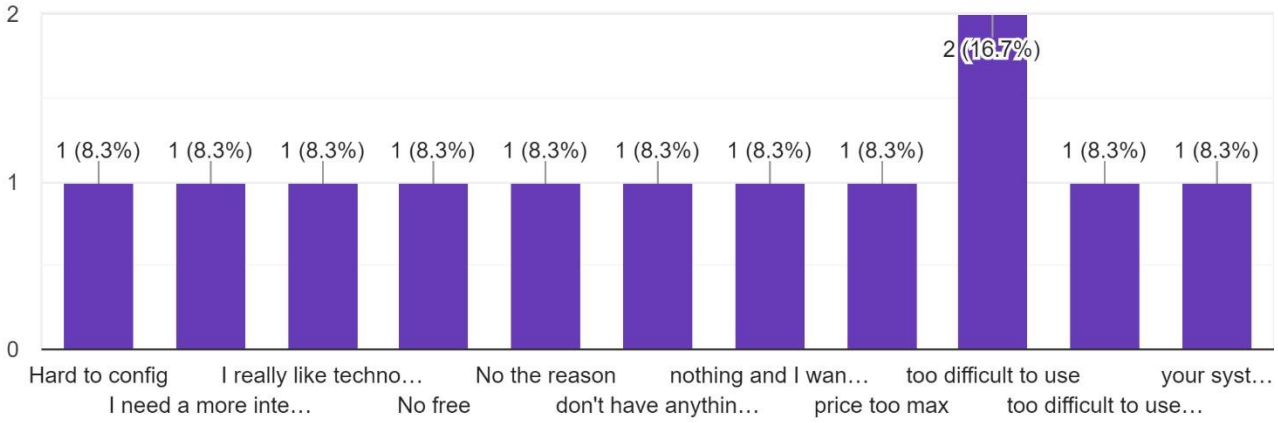
When my IoT system was introduced to users and surveyed my interest and satisfaction with the IoT system, I found that out of 12 people, 3 respondents did not like (25%) and 9 respondents like (75%). The results show that most users are interested and satisfied with the IoT system



when my IoT system was introduced to users and I recommended installing the IoT system in the house they were staying in, the results out of 12 people did not like it (27, 3%) and 9 respondents liked it (72.7%). The results show that most users want to install IoT systems.

5. What are the reasons you are not satisfied with my IoT system and the changes you want to install in the IoT system?

12 responses



The next survey is a user review of my IoT system, and do they give unsatisfied reasons about the system then give me the answer to change and develop it.

6. If tested for IoT system, which features would you like to improve?

12 responses

Control by voice

auto run when I go home

sound sensor

motion sensor

save energy

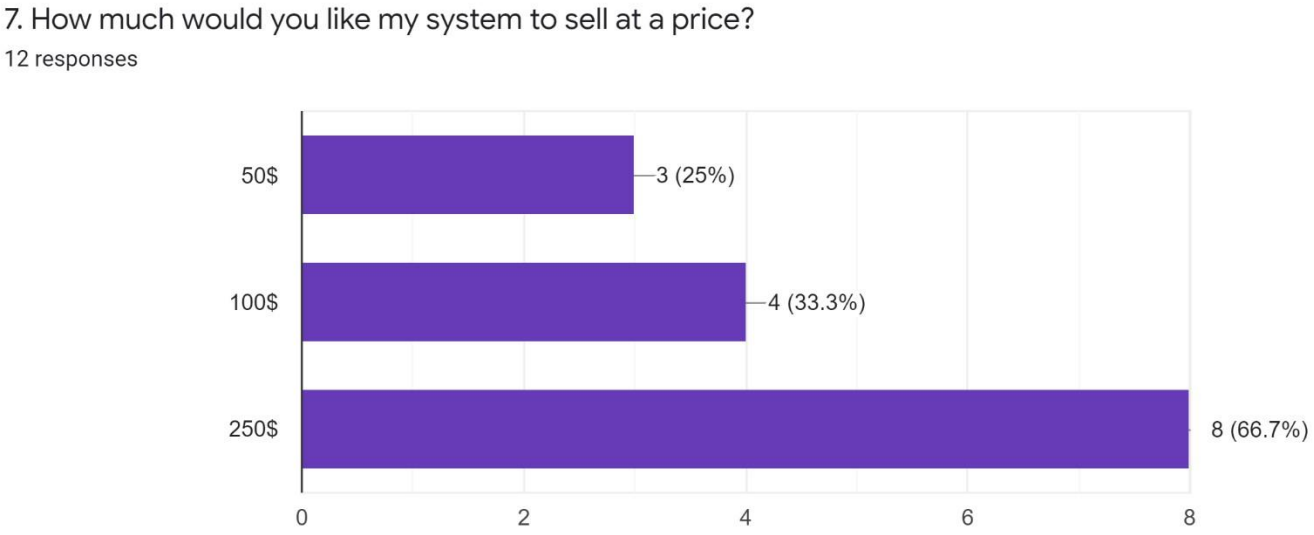
print money

It's already perfect

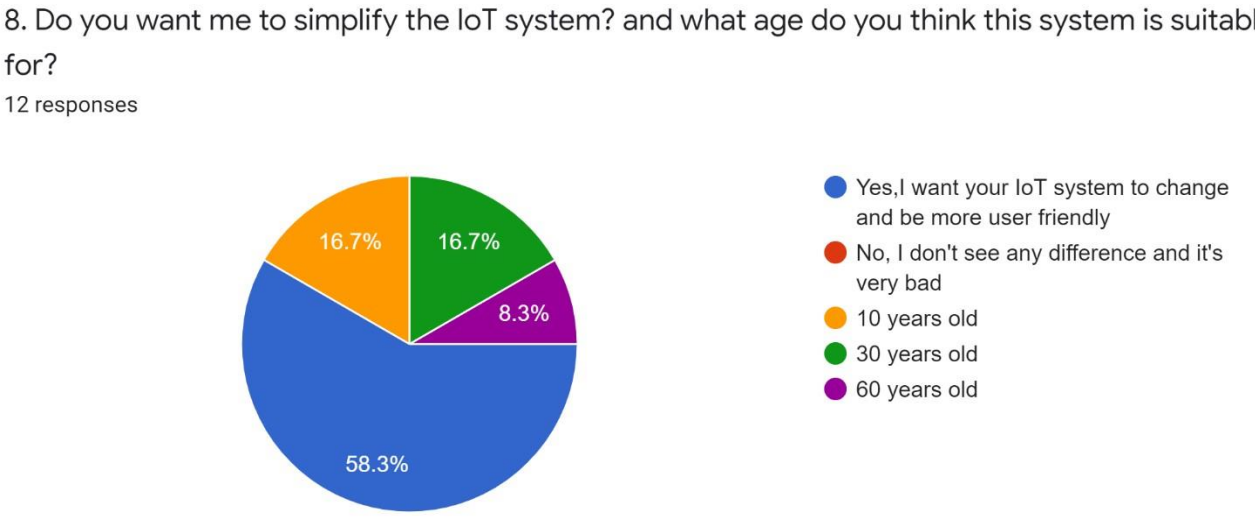
Don't have features I would improve

hack everything

The next survey is my users' requirements for my IoT system, and do they make changes that require me to give me answers to change and develop it?



My next survey was asking users what price they wanted when my IoT system went on sale, and the results were mostly agreed with the price of $ 250 and the rest were $ 50 and $ 100.



When looking through and evaluating user reviews, most of them find themselves saying that my system is difficult to use and that I have changed the system to be friendly and easy for users. And most of the opinions I get when users want to use my system are young and middle aged 10 to 30 years old and the rest 60 years old.

D. My critical assessment of the program based on the evaluation of end-users:

IoT devices have helped us a lot, but there are both advantages and disadvantages to everything. From the smart devices are always automated work, thereby making people passive, lazy

- My system consists of IoT devices that completely automate and handle in-house temperature control. This system would make you no longer have to think about the temperature and the motion sensor would automatically handle the devices on or off, along with the lights and devices linked to the Home Gateway network. Like a smartphone to monitor the whole system, automatic temperature controls, with motion sensors inside the house to detect whether anyone is in the room or not, just switch on IoT devices when there is a person in the room and switch off when there is no one, this way avoids the waste of energy and every IoT device is connected wirelessly so that no cables are required.
- And the bad points are the security issue and the home gateway if the home gateway falls down anywhere, the whole system stops functioning, and for the vulnerability, I've already taken an information security course and there's a device that checks all IP addresses connected to the network named network.