Geolocation based Smart home system

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RESEARCH STEPS

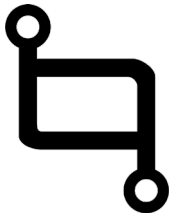
Background Research

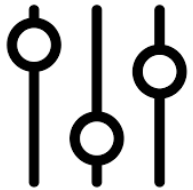
iTERATION 1

ITERATION 2

Evaluation

What is smart system?

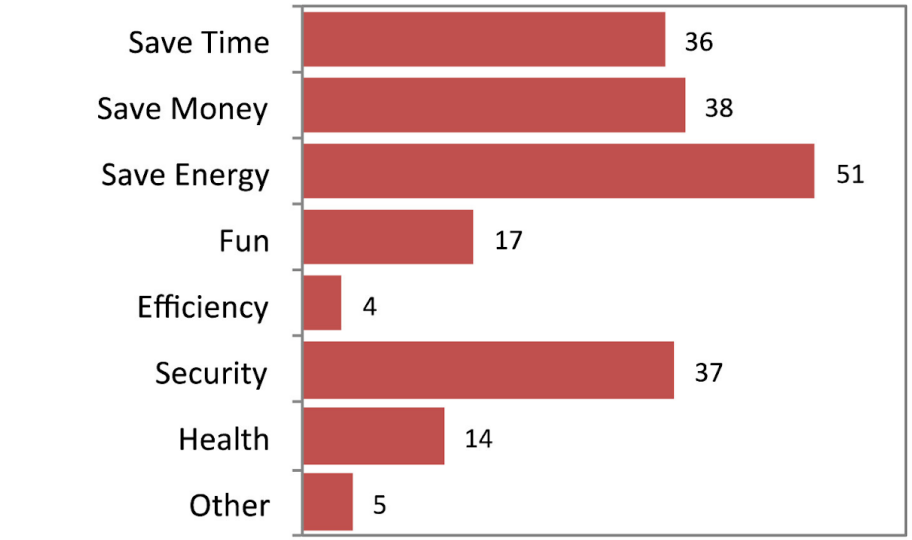




WHY?

N=62

(a) Benefits to user

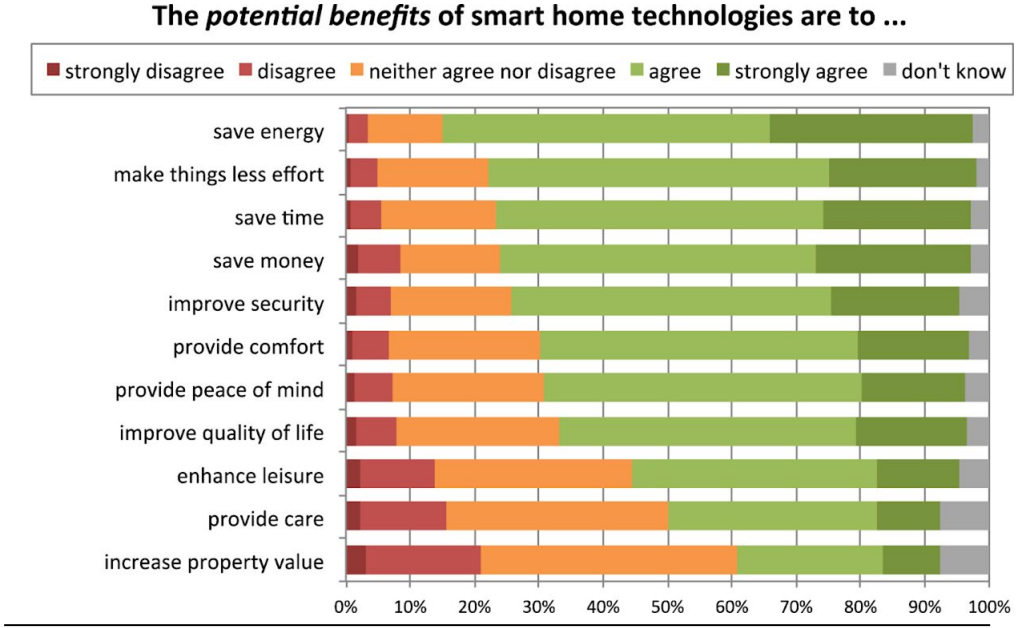


Content of smart home marketing material.

Wilson, C., Hargreaves, T. and Hauxwell-Baldwin, R. (2017). Benefits and Risks of Smart Home Technologies. *Energy Policy*, 103, pp.72–83.

WHY?

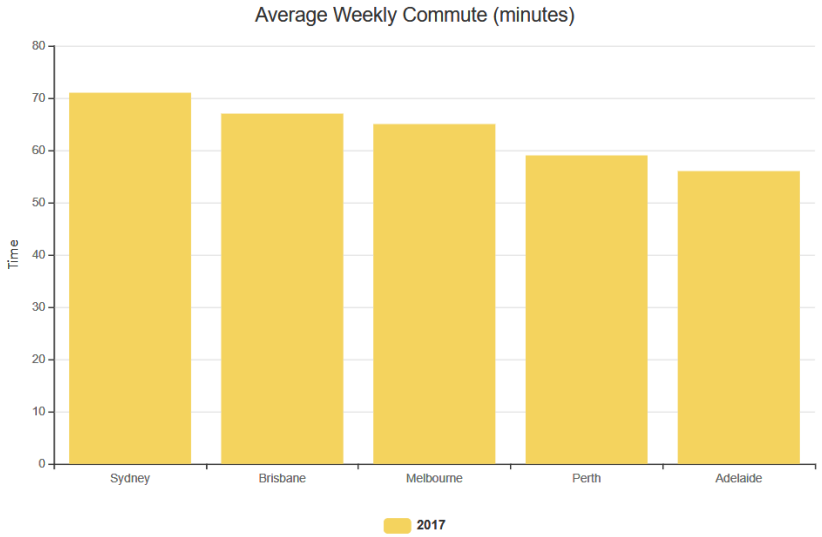
N = 1025



Prospective users' perceptions of the benefits of smart home technologies. "The purpose of the smart home is making life at home more convenient (83% agree or strongly agree)"

Wilson, C., Hargreaves, T. and Hauxwell-Baldwin, R. (2017). Benefits and Risks of Smart Home Technologies. *Energy Policy*, 103, pp.72–83.

WHY?



City workers lived in mainland state capitals spent more than an hour travelling to and from work each day. The average was about 66 minutes.

Household, Income and Labour Dynamics in Australia (2019)

Ready to go home?

Can you prepare the bath water for me in advance?

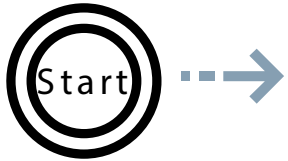
Can you heat my food in microwave in advance?

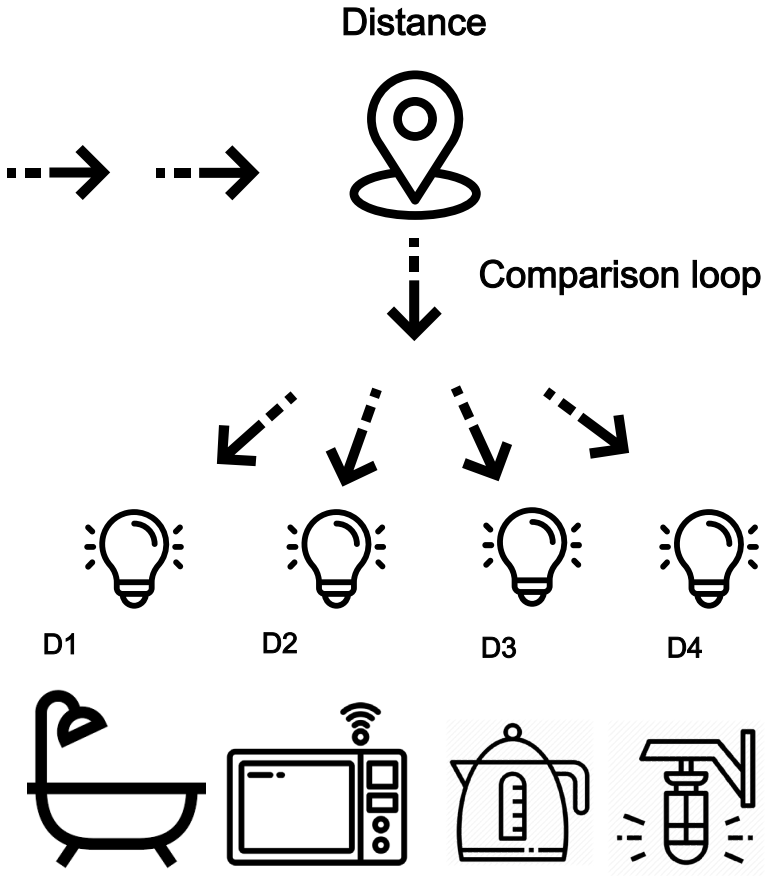
Can you turn on the air-conditioner in advance ?

wELCOME HOME!

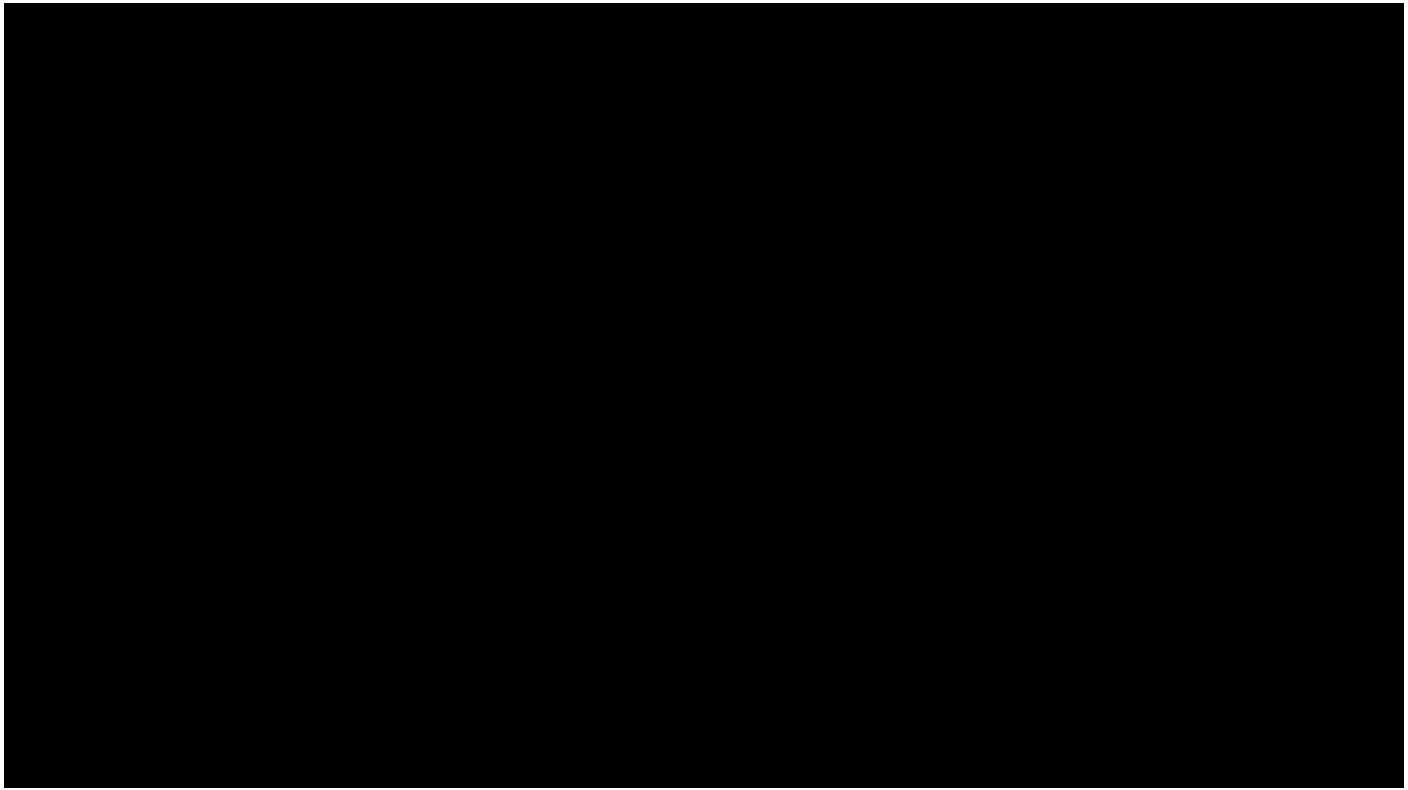
OK!

How does it work?

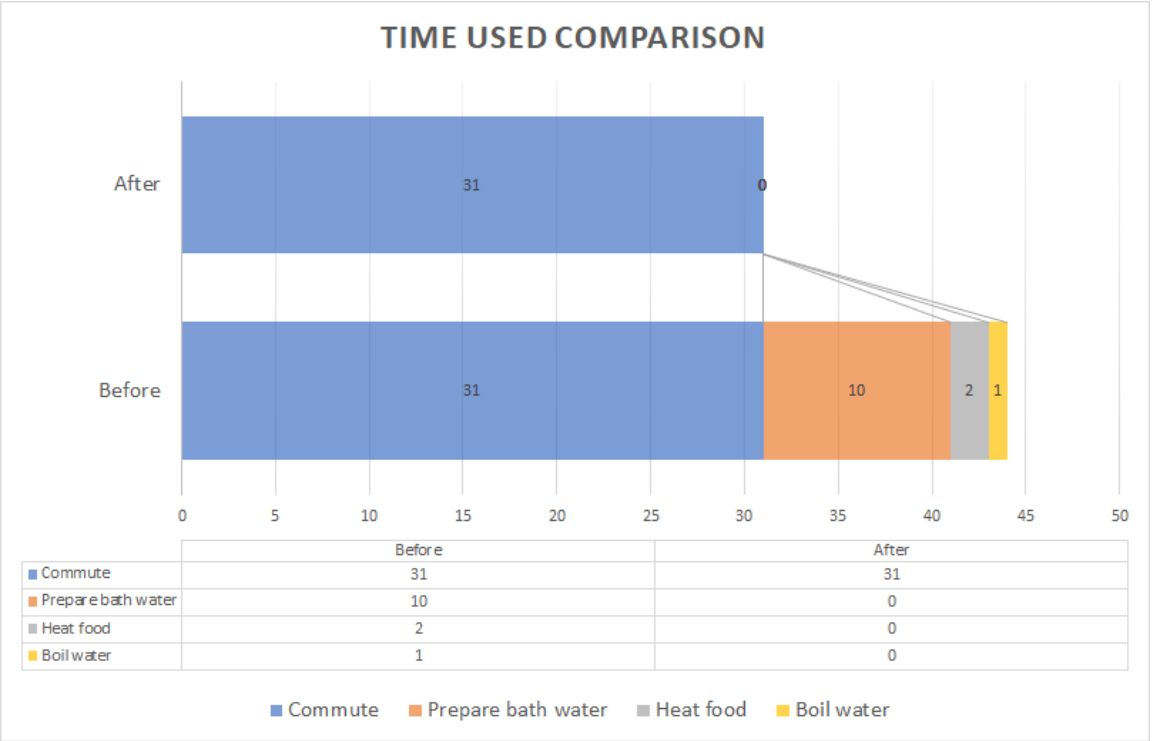




Video

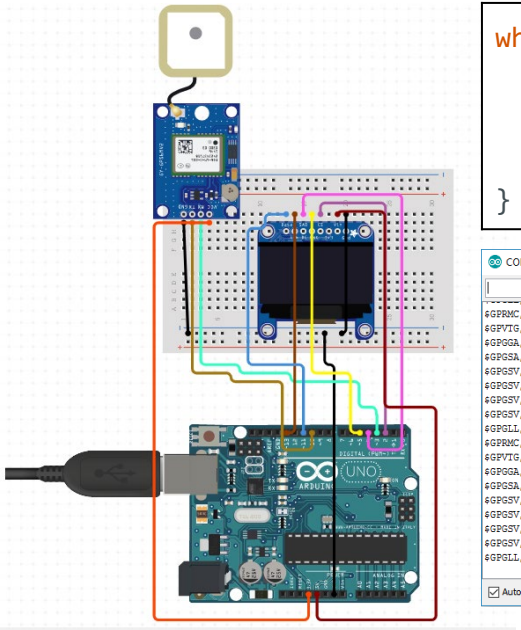


Results

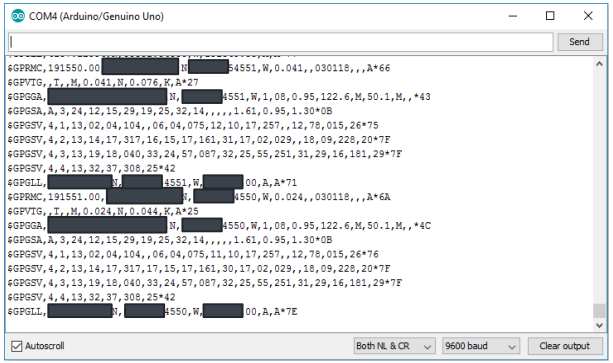


	Before	After
Commute	31	31
Prepare bath water	10	0
Heat food	2	0
Boil water	1	0

Iteration 1



```
while (ss.available() > 0){
  // get the byte data from the GPS
  byte gpsData = ss.read();
  Serial.write(gpsData);
}
```



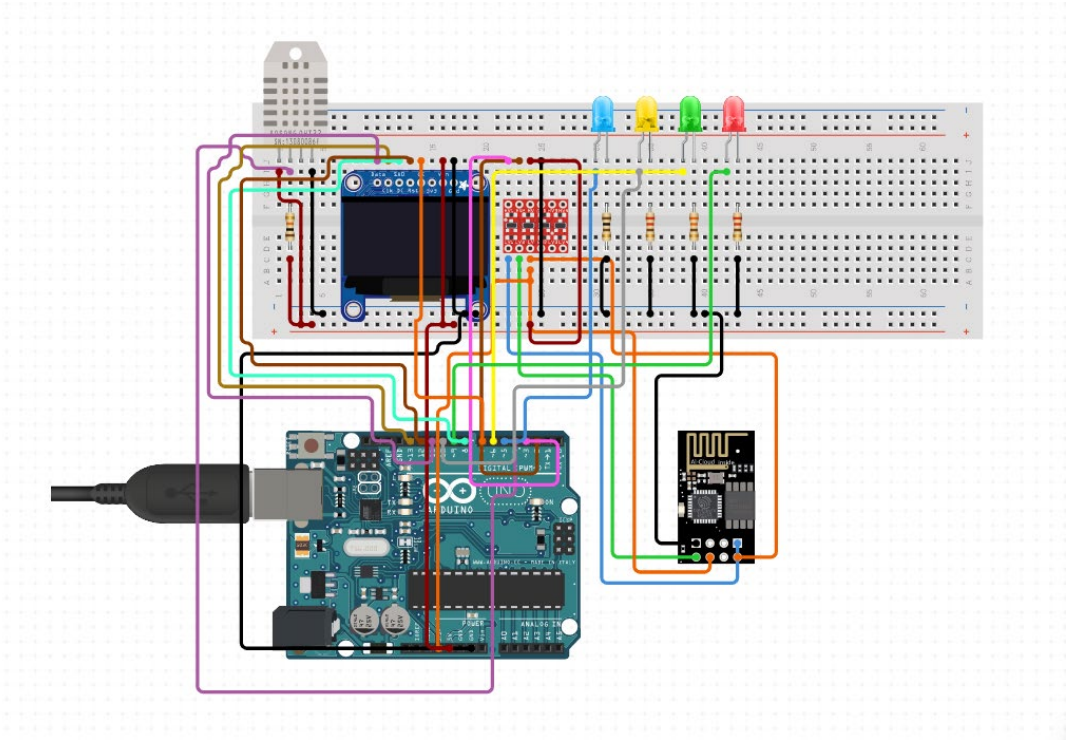
1. Aruino Uno
2. Neo-6M GPS Module
3. OLED

Output:

National Marine Electronic Association format

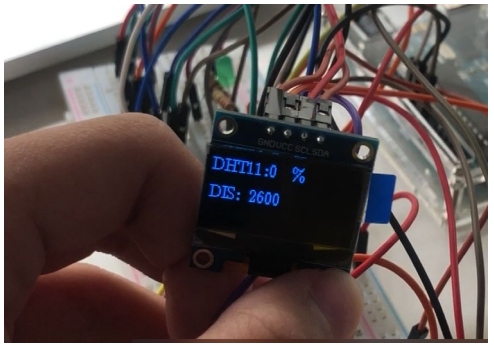
Code GPGLL : Latitude and longitude of current location

Iteration 2



1. Aruino Uno
2. ESP8266 WiFi Module
3. OLED
4. DHT 11
5. LED*4

Output:



Code EXPLAIN

```
void loop()
{
  MS2000_Con=millis();
  MS1000_Con=millis();
  if(MS1000_Con%100==0)
  {
    if(Count_EN)
    {
      if(Dis_Data>0)
        Dis_Data=Dis_Data-1;
       if(Dis_Data<0)
        Dis_Data=0;
```

ASSUMED DISTANCE

Assume the default distance is 2.6 km, and the distance will decrease 1 m per second

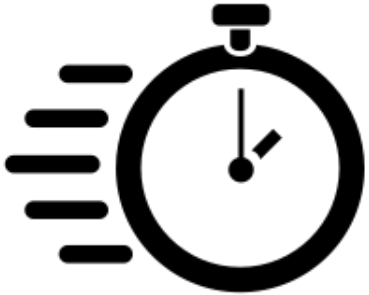
Compare the distance data with the set point
If the distance < set point
Start the house appliance

COMPARISON LOOP

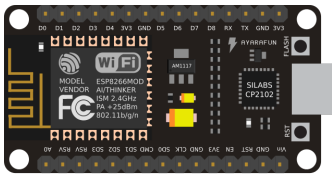
```
      if(Dis_Data<1000)
      {
        digitalWrite(LED_A, HIGH);

        if(Hum_Data_View>65)
        {
            digitalWrite(Fan_A, LOW);
            digitalWrite(Fan_B, HIGH);
        }
        else
        {
          digitalWrite(Fan_A, HIGH);
          digitalWrite(Fan_B, HIGH);
        }
      }
```

Conclusion

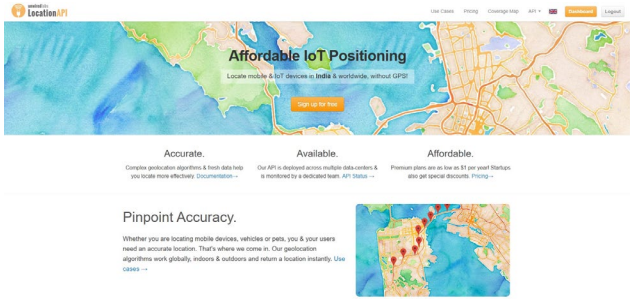


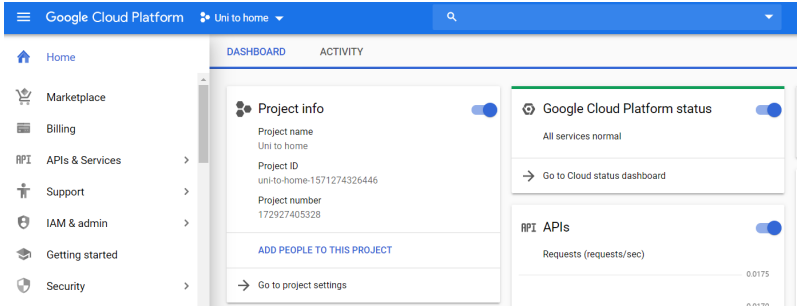
further direction



Testing NodeMCU with Neo-6M GPS Module

further direction





Develop mobile server& Connect and control system- IoT

Thank you