

IoT Project Presentation

By: Lily Shpak, Tuhina Dasgupta



Project Flow



User Input:

- City
- State (if within the United States)
- Country



Python parse user input & make API call to OpenWeather API



With API call response (JSON) parse the wanted data



Transform data into corresponding Raspberry Pi output

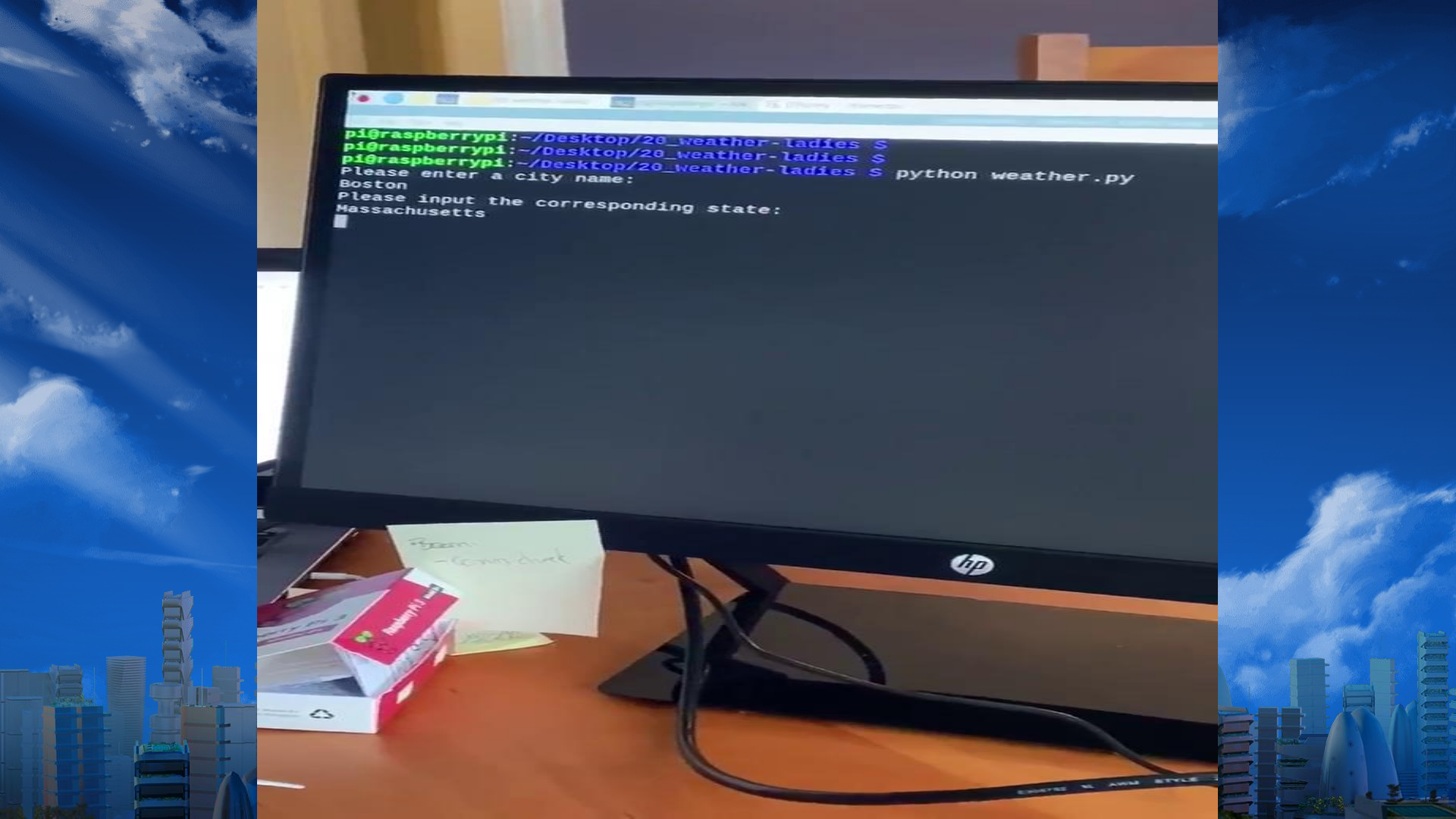


Raspberry Pi displays the data in

- wind speed: step motor
- wind direction: LED compass

1. DEMO

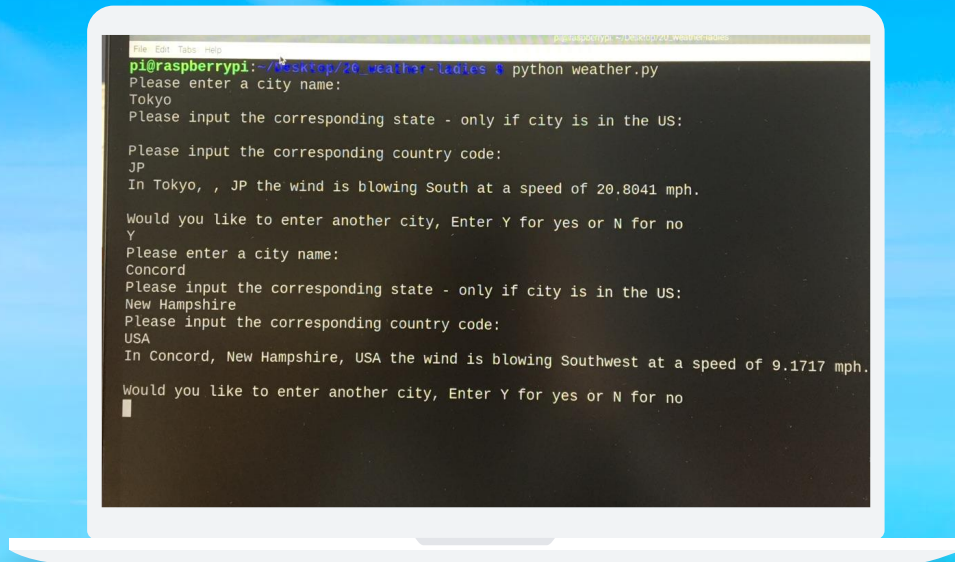




```
pi@raspberrypi:~/Desktop/20_weather-ladies $  
pi@raspberrypi:~/Desktop/20_weather-ladies $  
pi@raspberrypi:~/Desktop/20_weather-ladies $ python weather.py  
Please enter a city name:  
Boston  
Please input the corresponding state:  
Massachusetts
```




OPEN WEATHER API



Current Weather Data

Input:

Our Version of Current Weather

- City
- State (US only)
- Country

Via command prompt

Output:

JSON response

Relevant data:

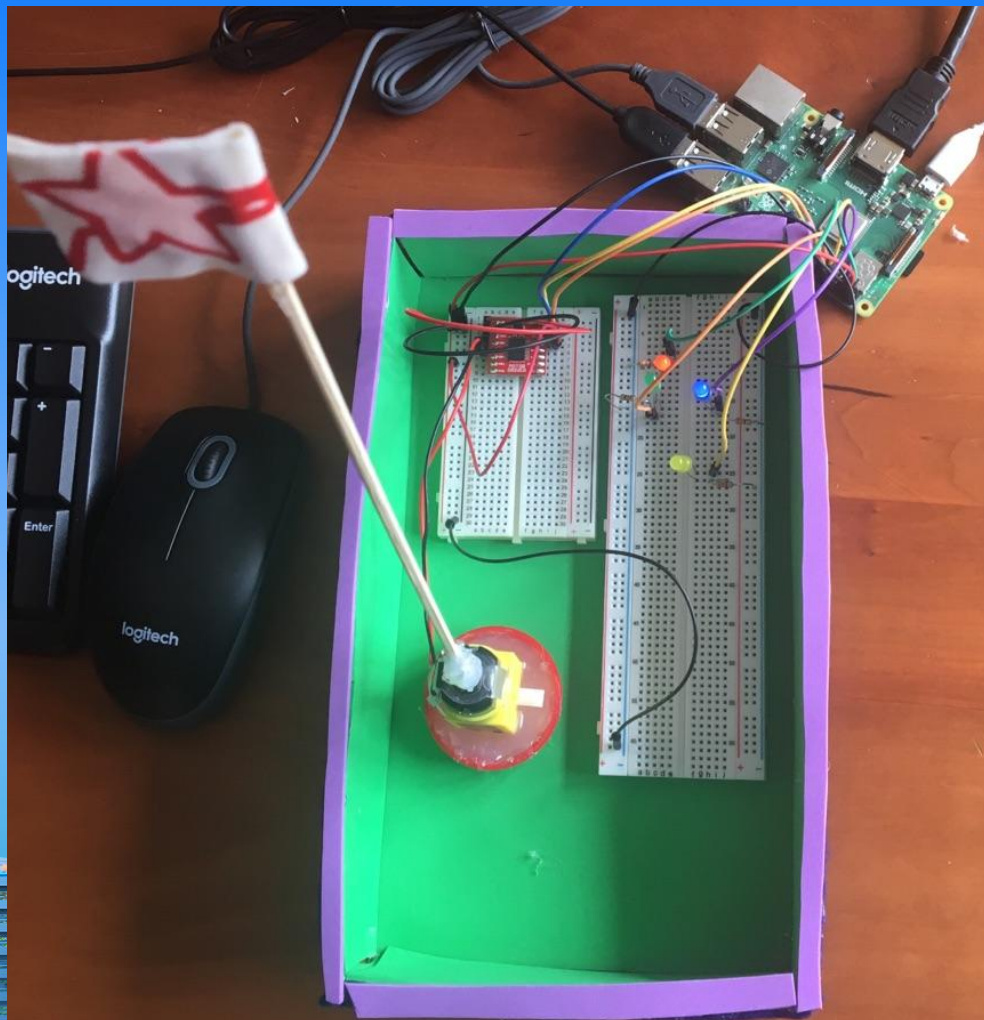
- wind speed
- wind direction

```
{
  "coord": {
    "lon": -122.08,
    "lat": 37.39
  },
  "weather": [
    {
      "id": 800,
      "main": "Clear",
      "description": "clear sky",
      "icon": "01d"
    }
  ],
  "base": "stations",
  "main": {
    "temp": 282.55,
    "feels_like": 281.86,
    "temp_min": 280.37,
    "temp_max": 284.26,
    "pressure": 1023,
    "humidity": 100
  },
  "visibility": 16093,
  "wind": {
    "speed": 1.5,
    "deg": 350
  },
}
```

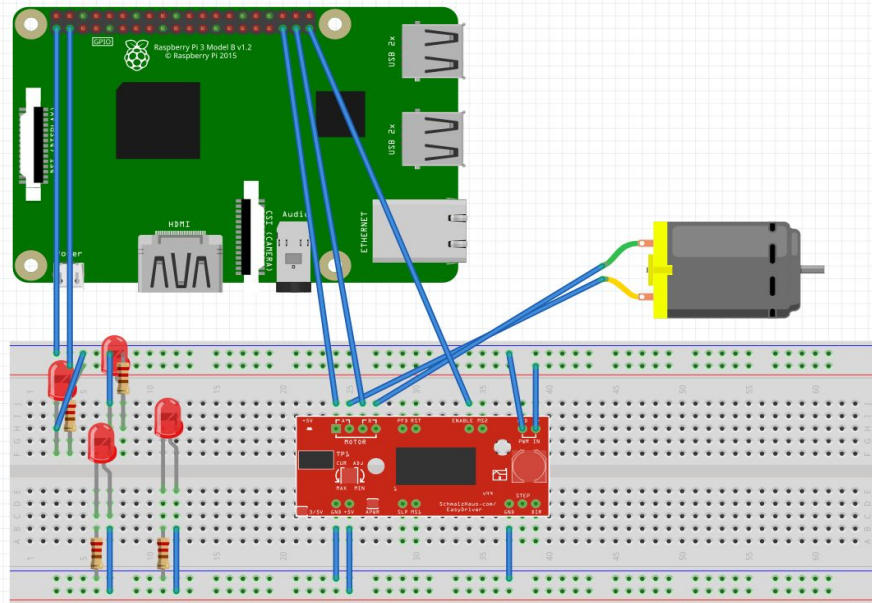


RASPBERRY PI





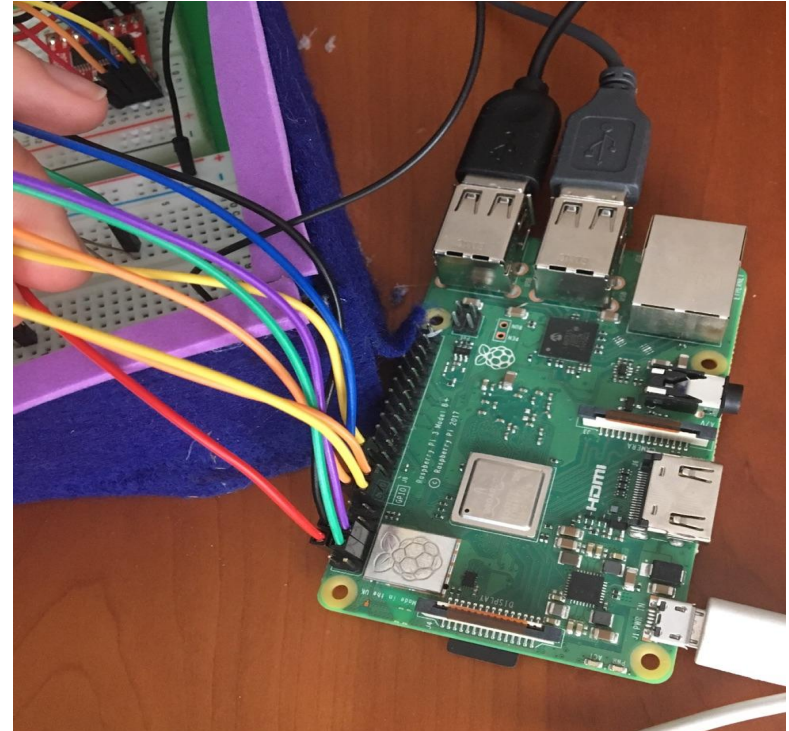
FRITZING DIAGRAM



RASPBERRY PI MODEL 3 B+

Single-board computer with wireless LAN and Bluetooth connectivity

- + micro SD card
- + monitor

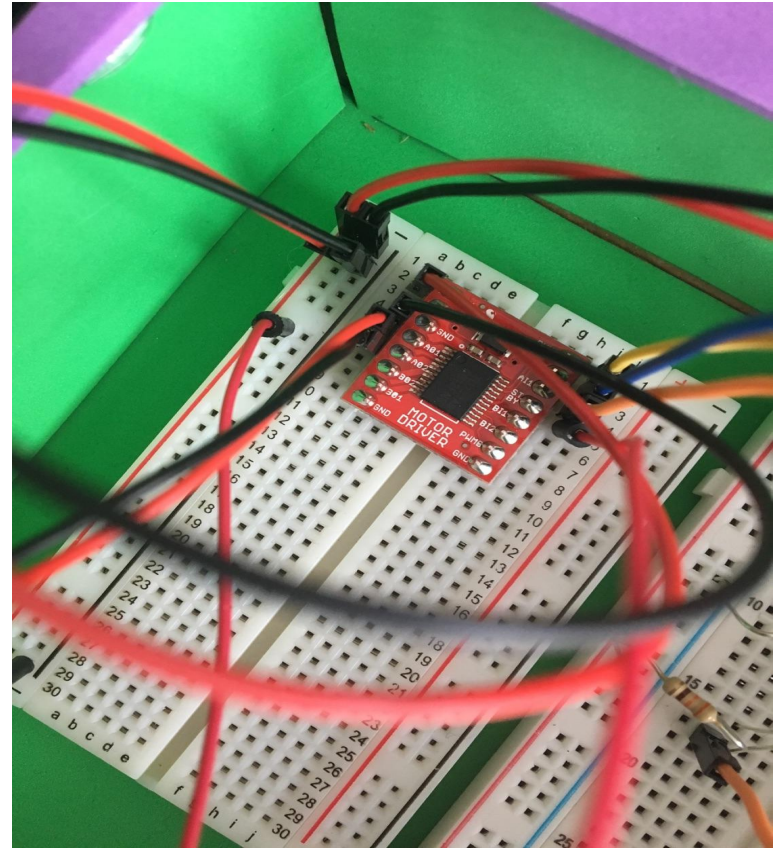


SPARKFUN MOTOR DRIVER

can control up to two DC motors at a constant current of 1.2A (3.2A peak)

- Two input signals (IN1 and IN2) can be used to control the motor in one of four function modes: CW, CCW, short-brake and stop

- The two motor outputs (A and B) can be separately controlled, and the speed of each motor is controlled via a PWM input signal with a frequency up to 100kHz.



DAGU MOTOR

requires a voltage of 4.5V with a no load current of 190mA while possessing a gearbox ratio of 48:1 and a wheel speed of 140 RPM unloaded

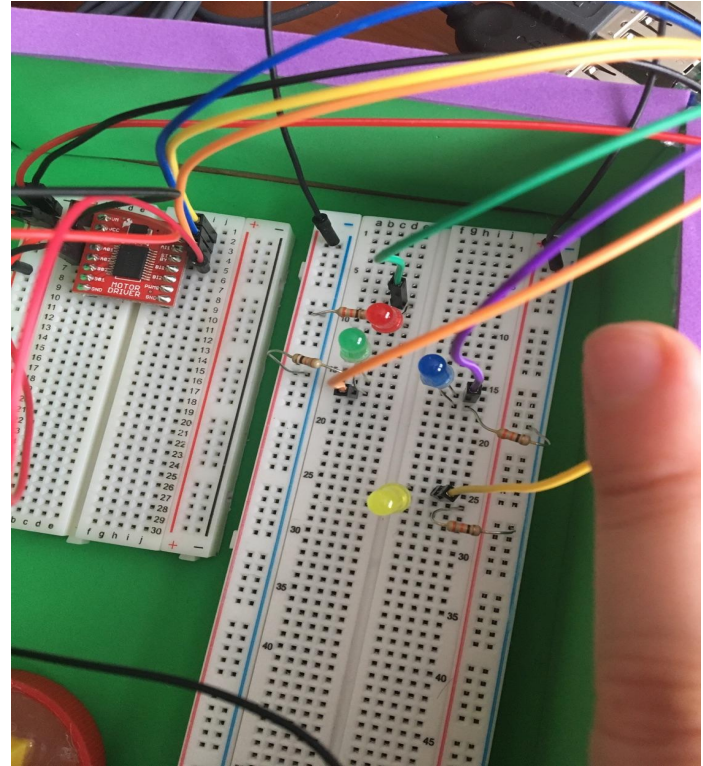


LED COMPASS

light-emitting diode is a semiconductor light source that emits light when current flows through it.

- + green - west
- + blue - east
- + yellow - south
- + red - north

also have the ability to show NE, SE, NW, SW with dual led



CREDITS

Thanks:

- ◆ API by [OpenWeatherAPI](#)
- ◆ Presentation template by [SlidesCarnival](#)
- ◆ Pat Cody, Lord of Discord - Fritzing App Download

THANK YOU !

