

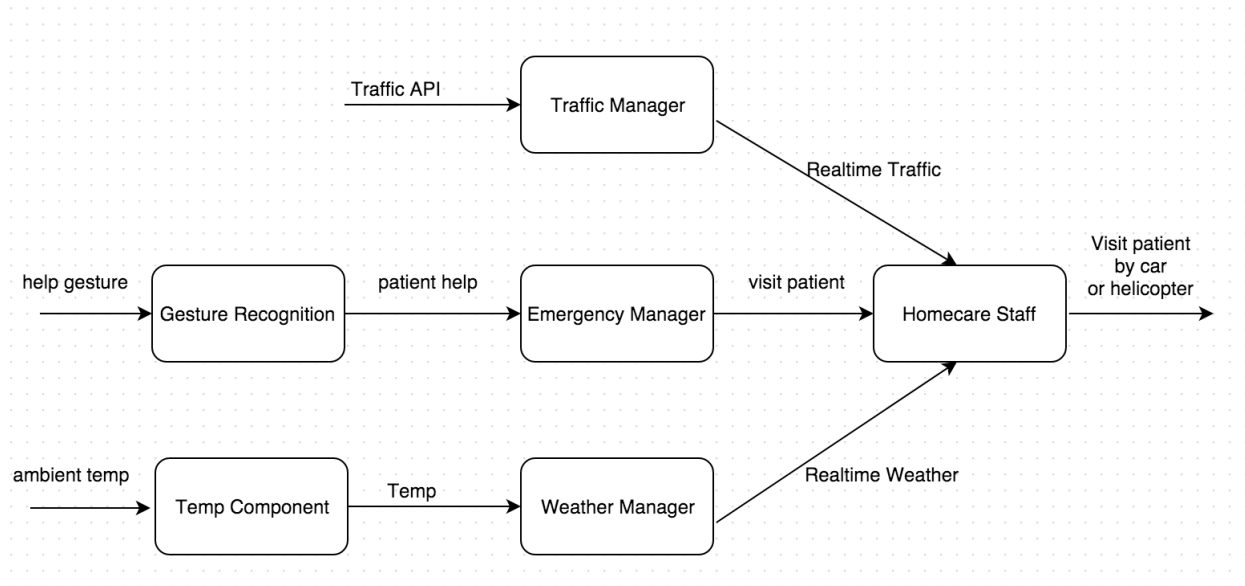
CS2310 Term Project

Final Report

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1. Overview

This term project extends the exercise 4. Besides implement the health care system and build the components, I plan to add two additional components: Traffic Manager and Weather Manager. They will help Homecare Staff to decide the way to visit patient: either by car (when the traffic and weather condition is good) or by helicopter (when the traffic or weather condition is bad).



2. Components

2.1. Gesture Recognition

Type: Basic

Main task: receive patient help gesture from sensor (using prjRemote to mimic this message) and generate patient help message, which will be sent to Emergency Manager.

2.2. Emergency Manager

Type: Super

Main task: receive patient help message from Gesture Recognition and generate whether to call or visit patient. And send its decision to Homecare Staff. If get the patient help the first time it will send 'call patient'. If get patient help more than twice, it will send 'visit patient'.

```
int count = 0;
set timer = x min;
```

```

        if (count < 1) {
            count++;
            send call patient;
        } else {
            send visit patient;
        }

        if (timer.timeout) {
            count = 0; //reset counter.
        }
    }

```

2.3. Homecare Staff

Type: Super

Main task: receive the decision from Emergency whether to call or visit patient. If need to visit patient, it will ask for Traffic Manager and Weather Manager information and decide which transport way to use.

```

    if (realtime <= threshold) {
        visit by car;
    } else {
        if (weatherCondition == Good) {
            visit by helicopter;
        } else
            visit by car; //condition is bad, cannot visit by helicopter.
        }
    }
}

```

2.4. Traffic Manager

Type: Basic

Main task: When received traffic requirement, traffic manager will get real time traffic time from Google Map, and send it to Homecare Staff.

2.5. Temp Component

Type: Basic

Main task: gather ambient temperature using temp sensor, and send it to weather manager.

2.6. Weather Manager

Type: Basic

Main task: receive the temp reading or temp alert from Temp component, then maintain a weather condition and send the weather condition to Homecare Staff.

3. Message definition (new messages beyond exercise 4)

3.1. Real time traffic

Sender: Traffic Manager

Receiver: Homecare Staff

Purpose: traffic condition

3.2. Real time weather

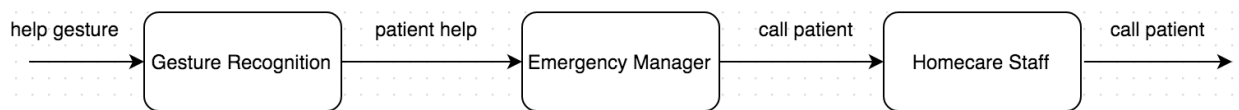
Sender: Weather Manager

Receiver: Homecare Staff

Purpose: weather condition

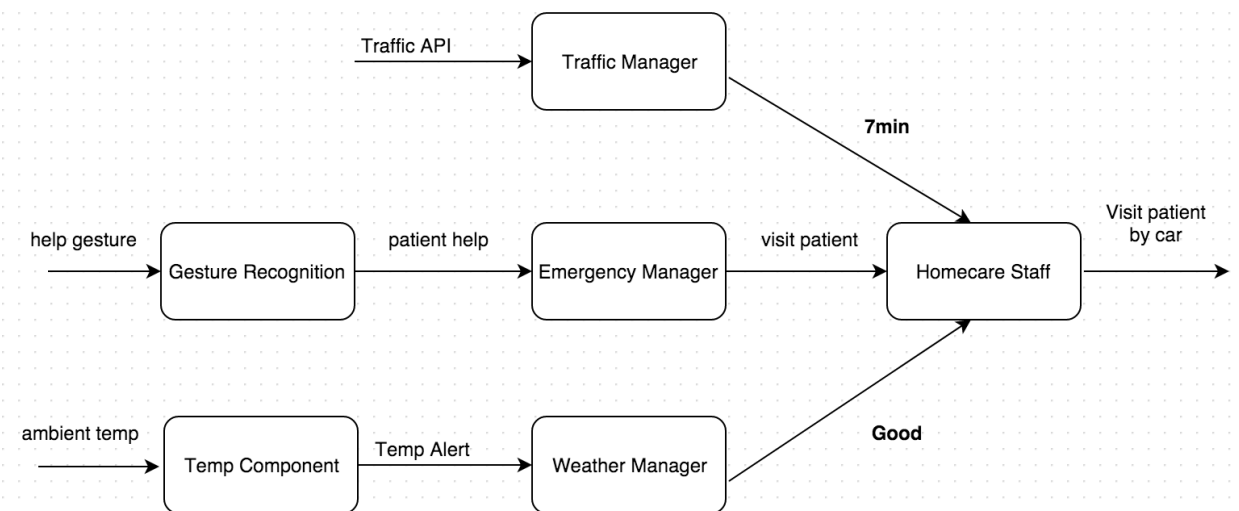
4. Scenario

4.1. Call patient



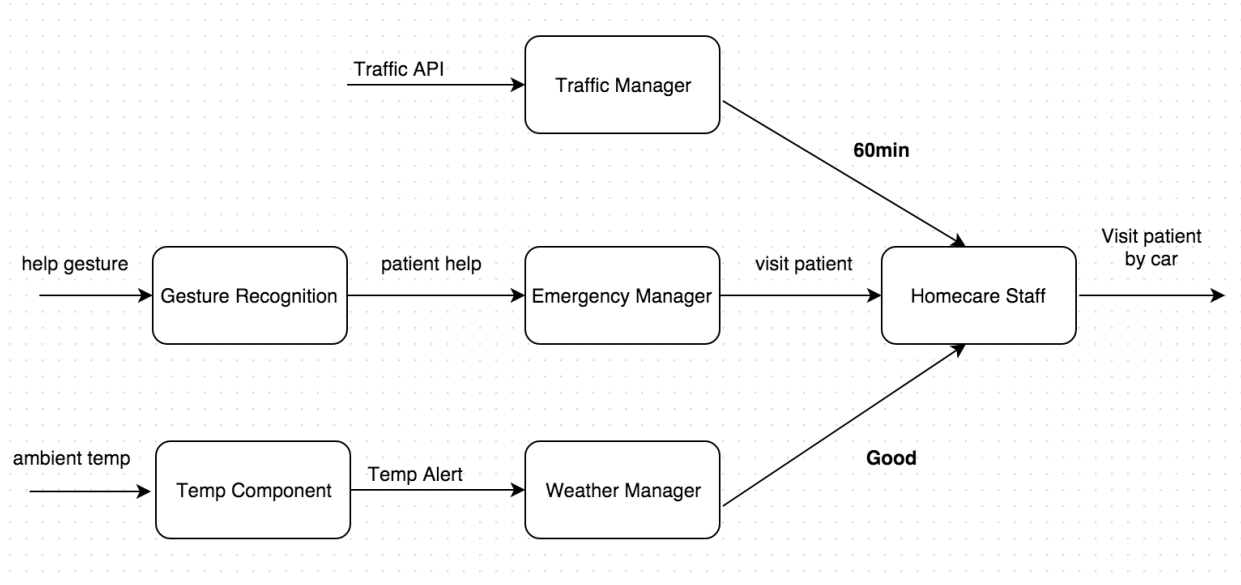
If receive one patient help message, Emergency Manager will decide to call patient. Since it's only calling patient, it won't affect the Traffic manager or the Weather manager.

4.2. Visit patient by car



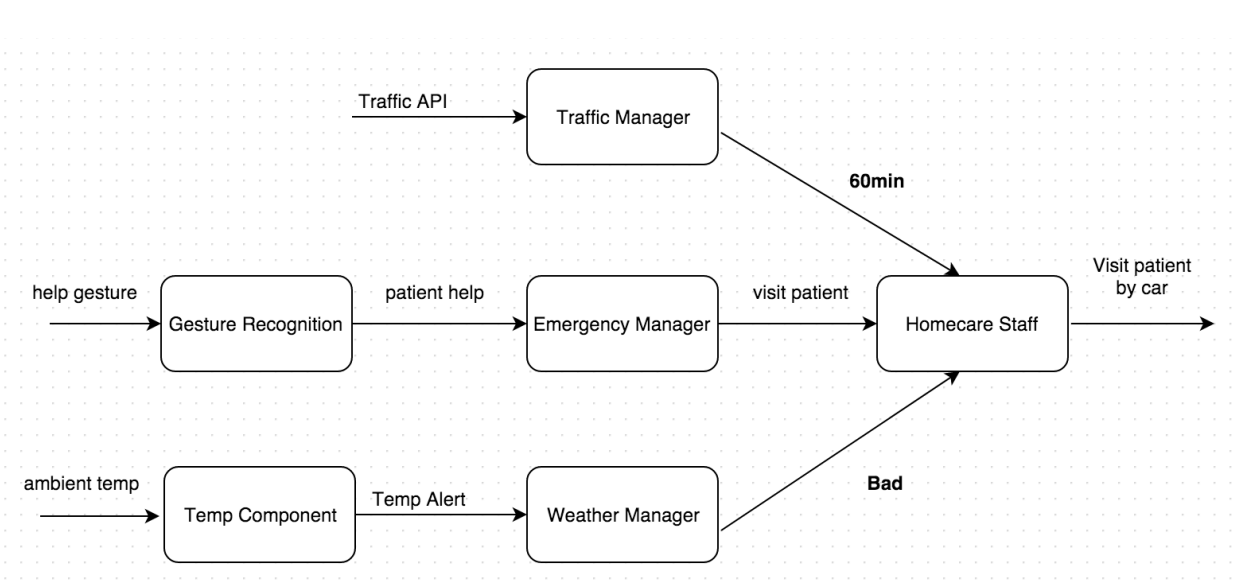
If receive more than two patient help messages, Emergency manager will decide to visit patient. Then the Traffic manager will help to check the real time traffic duration and send it to Homecare Staff. Also the weather manager will send the weather condition to Homecare Staff. For example, if the time 7min is less than the threshold and no matter what weather condition is, Homecare Staff will decide to visit by car.

4.3. Visit patient by helicopter



If the time 60min is larger than the threshold and also the weather condition is Good, then Homecare Staff will decide to visit by helicopter.

4.4. Visit patient by car



If the time 60min is larger than the threshold, but the weather condition is Bad, then Homecare Staff will still decide to visit by car.