# CS2310 Final Report
Personal Health care System

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12/08/2015

1. System Overview:

This project is implemented for senior citizen who live alone at home and are not computer-literate using SIS system. It contains a gesture recognition component, so users can only use gestures to communicate with the system when they need help. Here is the system architecture:
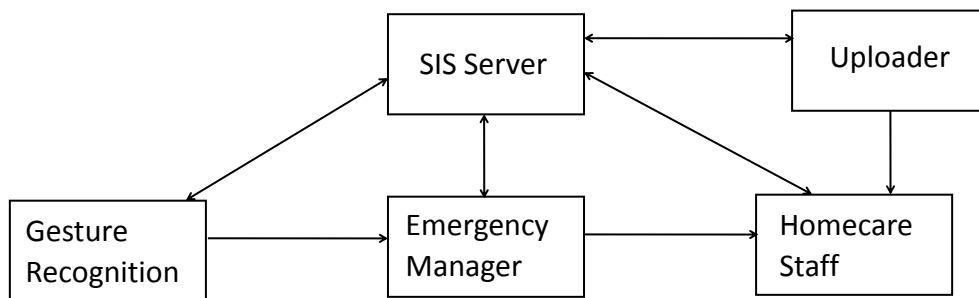

2. Component Implementation:

This system mainly contains four components. The two basic component Gesture Recognition, Homecare Staff and the super component Emergency Manager are entirely my own codes. The forth component, Uploader is an adaption of the existing component in SISv5.

2.1 Gesture Recognition(Basic):

This component mainly detects gestures from the user. When it detects a 'I need help' gesture, it will send a 'call alert' message to Emergency Manager. When it detects a 'in emergency' gesture, it will send a 'visit alert' message to Emergency Manager.

Gesture Simulation:

In this project, I mainly use the following gestures to simulate a help message.
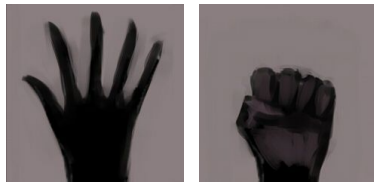
If the above two gesture occurs consecutively, it will be detected as a 'I need help' gesture.

When a senior citizen is in emergency, it may be hard for him to show a uncommon gesture. So we just assume that if the above gesture keeps being detected for a long time, it will be detected as a 'in emergency' gesture.

2.2 Emergency Manager(Controller):

This component reads messages from Gesture Recognition and sends different results to Homecare Staff.

When it reads a 'call alert' message, it will send a 'call patient' message to Homecare Staff.

When it reads multiple 'call alert' messages, it decides that multiple help gestures will convert to an emergency gesture, and then send a 'visit patient' message to Homecare Staff.

When it reads a 'in emergency' message, it will directly send a 'visit patient' message to Homecare Staff.

2.3 Homecare Staff(Basic):

This component waits for messages from Gesture Recognition and then shows the different actions on its own side.
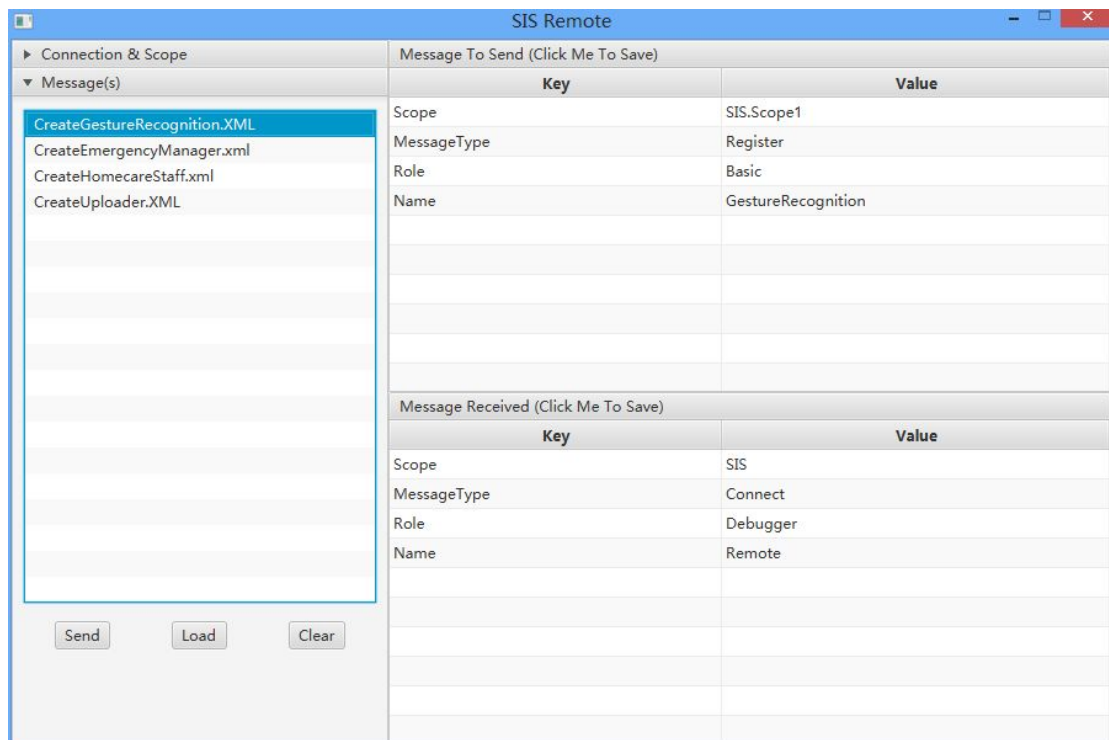
2.4 Uploader(Advertiser):

This component will check messages in Homecare Staff. For different actions the Homecare Staff decides, the uploader will directly send different emails to the correspond worker.
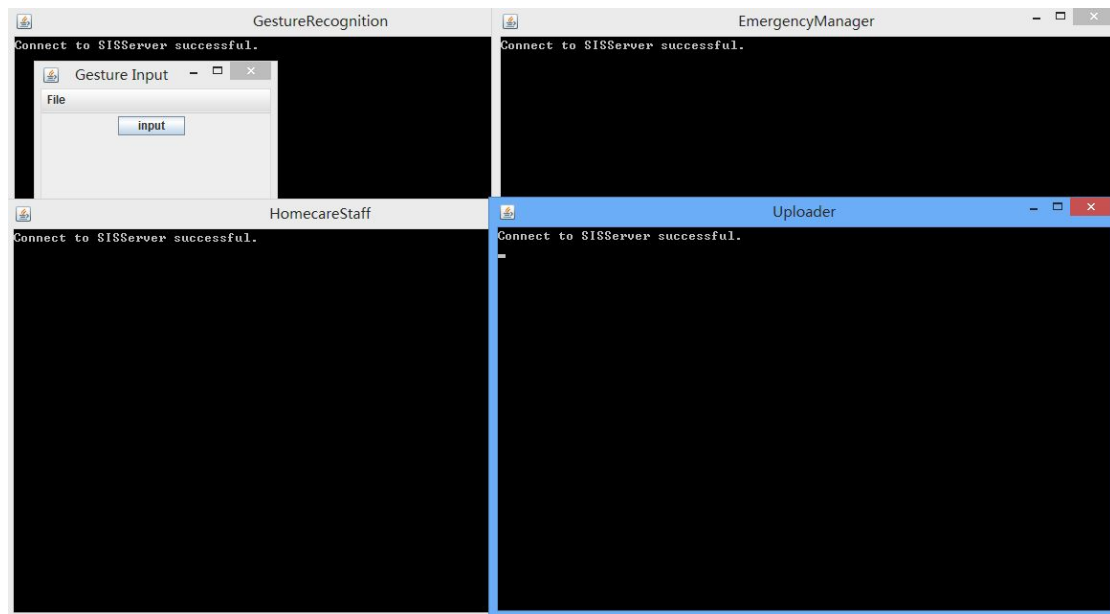
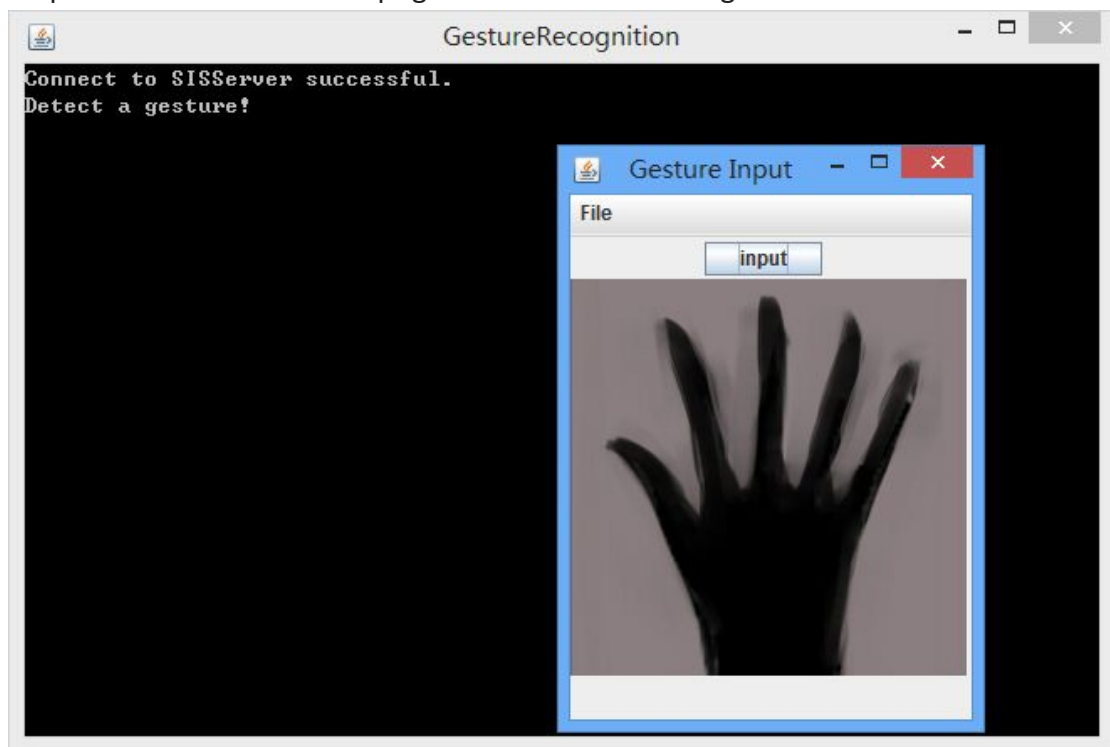## 3. Scenario:

Step1: start the SIS server.
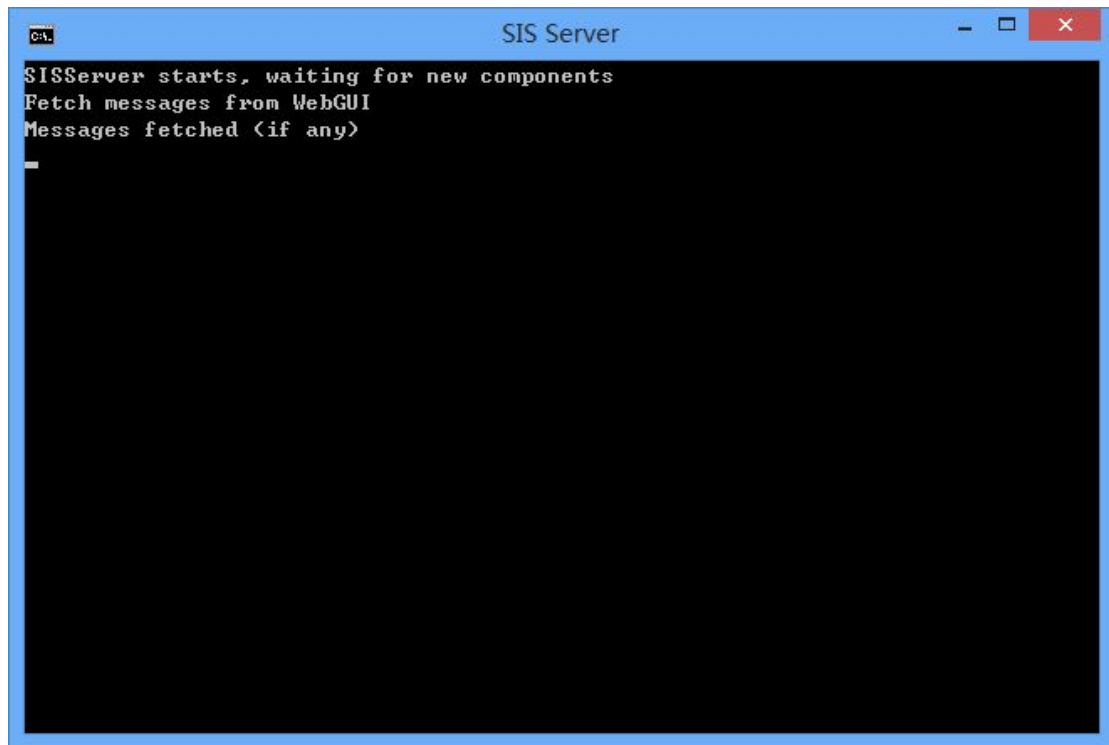
Step2: using PrjRemote to register all four components in SIS server.
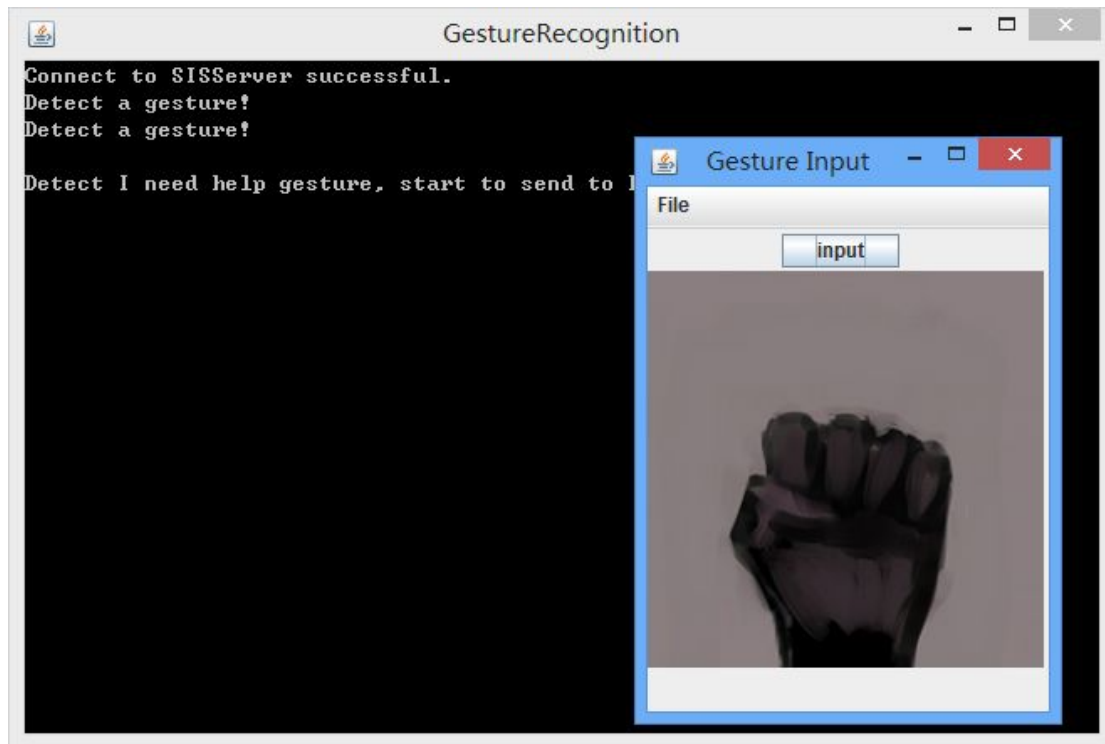

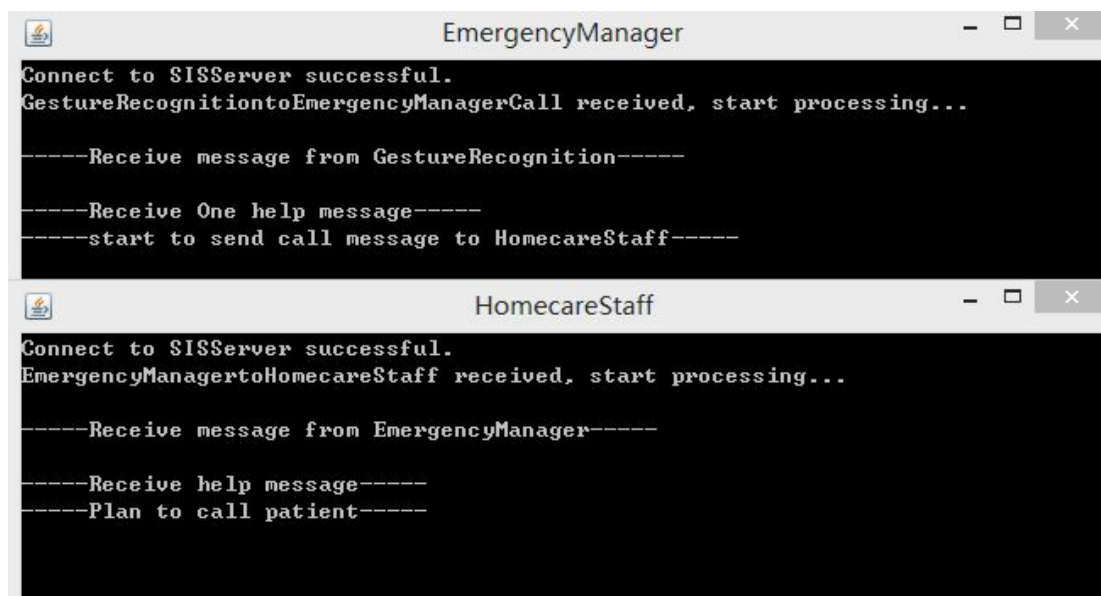Step3: run all the four components.

Step4: simulate a 'I need help' gesture in Gesture Recognition
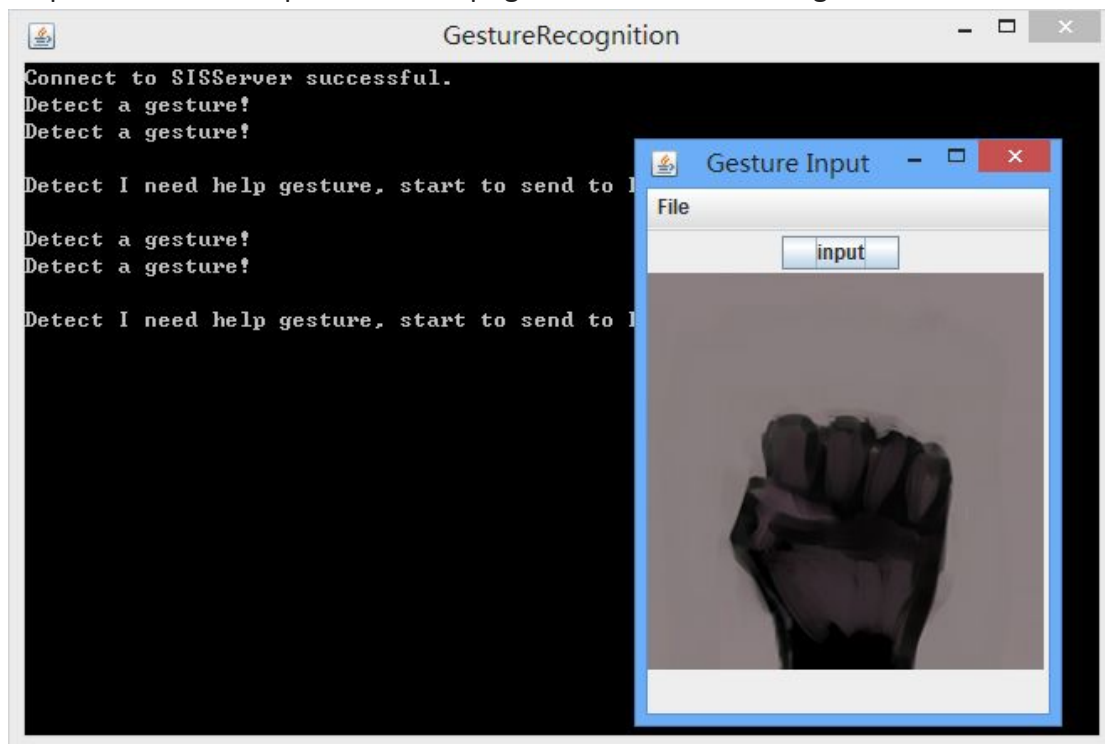
Step4.5: see results on different components

Personal Healthcare Data From SIS System.

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Receive help message, please call the patient

Step5: simulate multiple 'I need help' gesture in Gesture Recognition

Step5.5: see results on different components

Step6: simulate a 'in emergency' gesture in Gesture Recognition
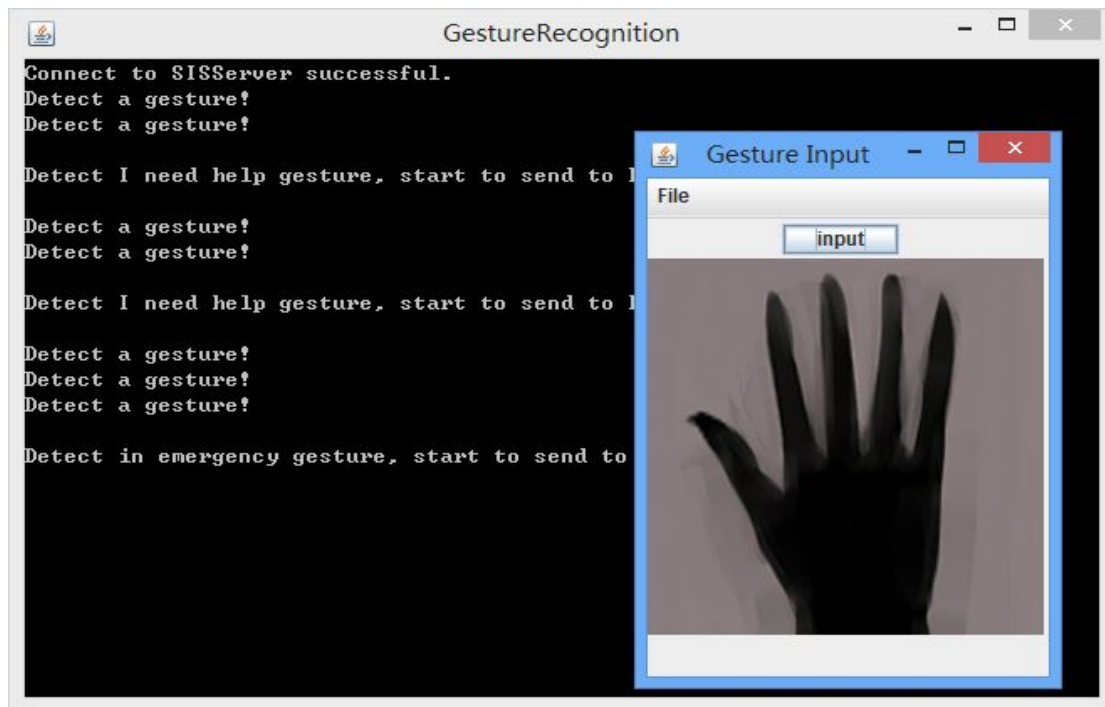
Step6.5: see results on different components
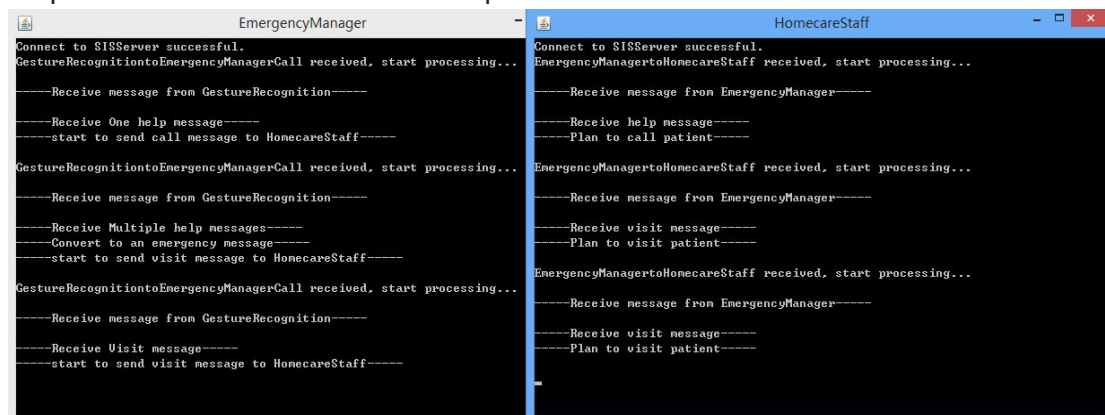
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Receive emergency message, please visit the patient!!!

4. Gems:

Things can be considered as gems in my project:
Gesture Detection(two types of gestures), Two additional components(Homecare Staff and Uploader) and a live demo on YouTube.
YouTube Link: https://www.youtube.com/watch?v=nNvzLBbuLZI