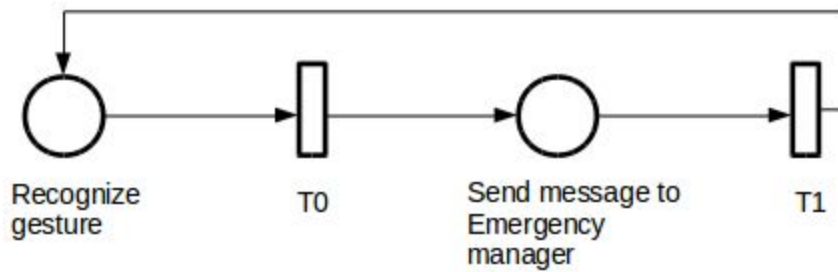


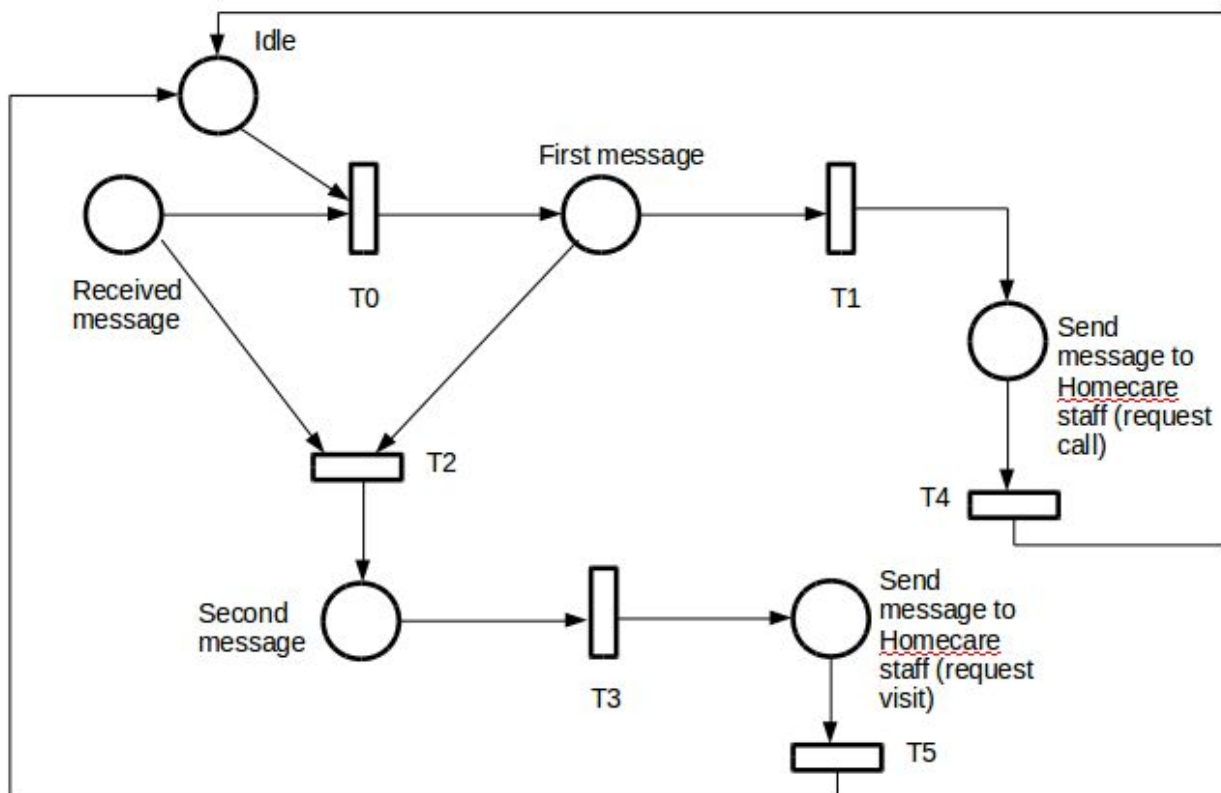
Exercise 3

Part a)

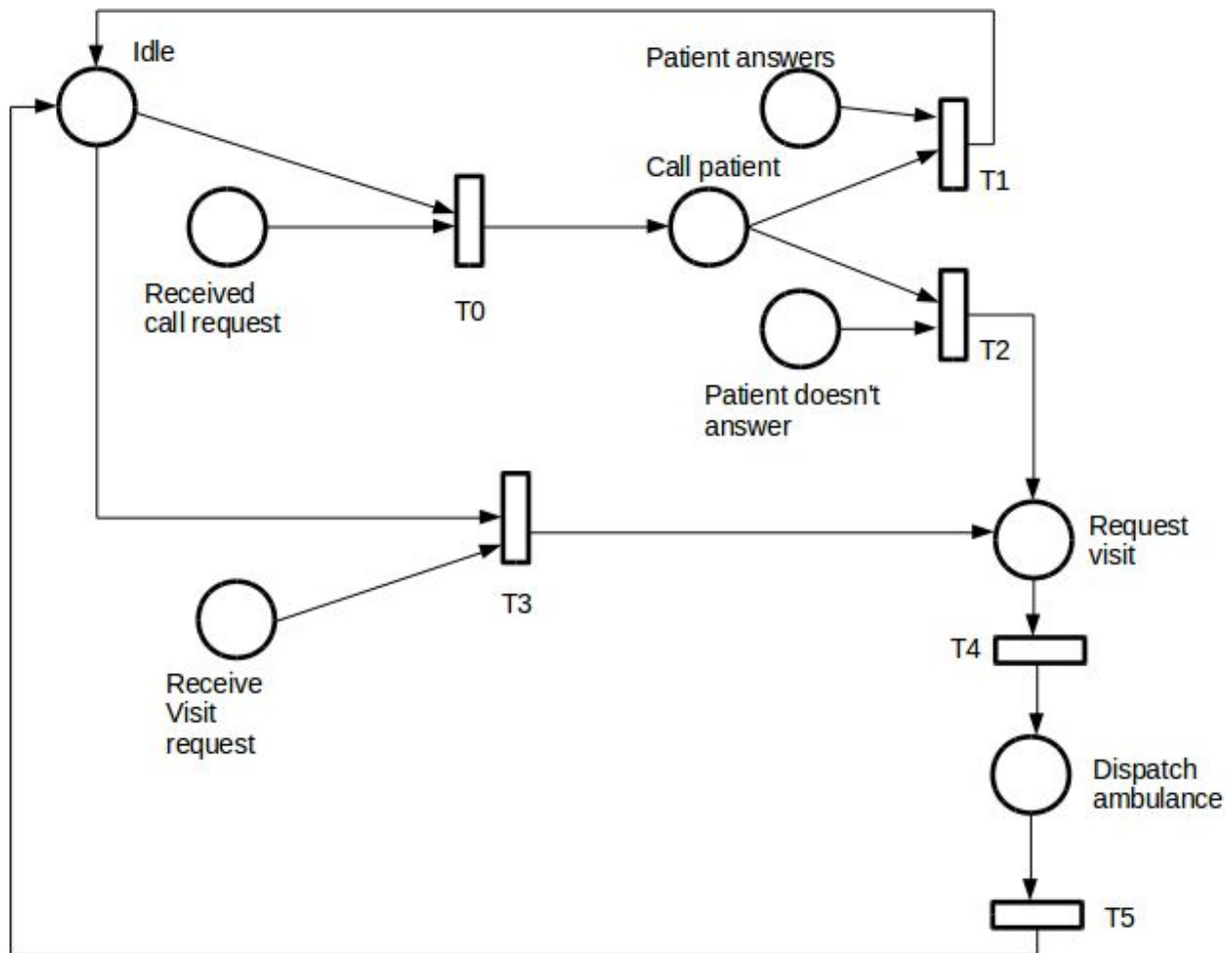
The Petri net diagram for the gesture recognition index cell is:



The Petri net diagram for the emergency manager index cell is:

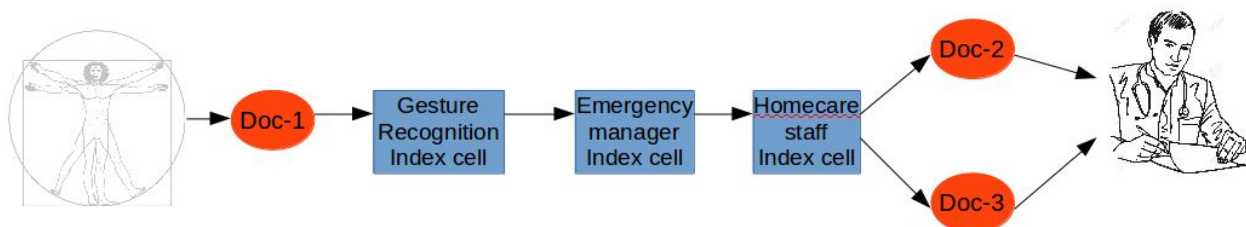


The Petri net diagram for the homecare staff index cell is:



Part b

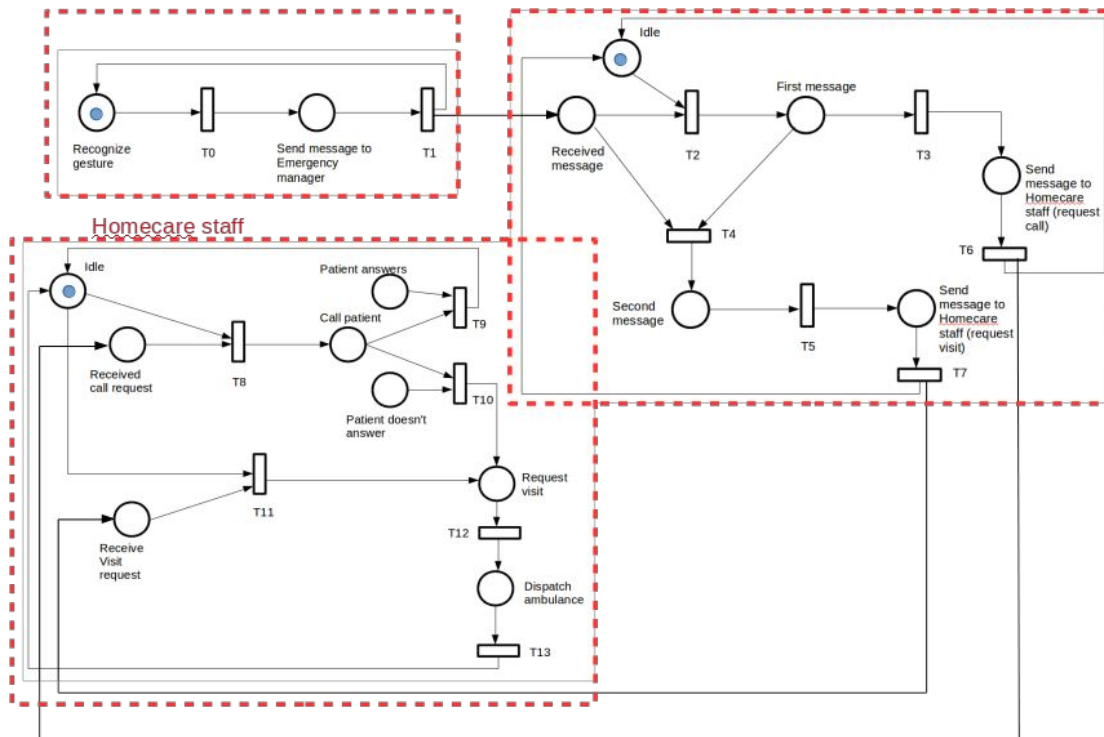
Diagram from part (c) of exercise 2:



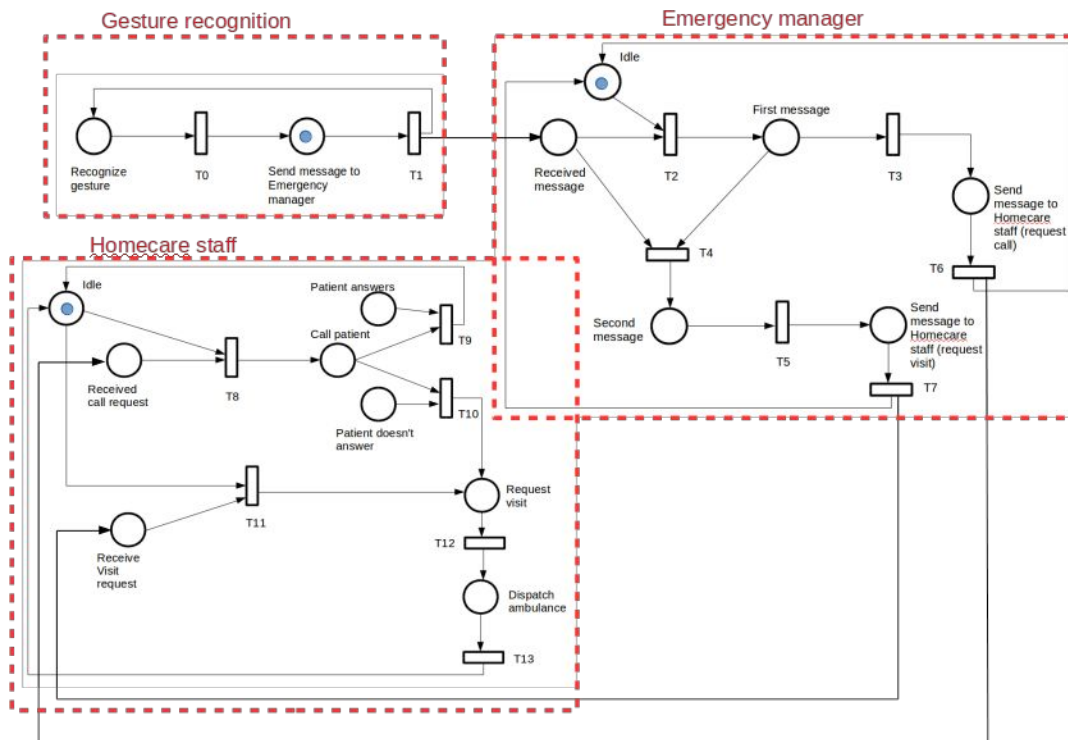
Scenario 1: the patient asks for help. The doctor calls the patient, who answers the phone.

The following is a sequence of marked petri net to show this scenario:

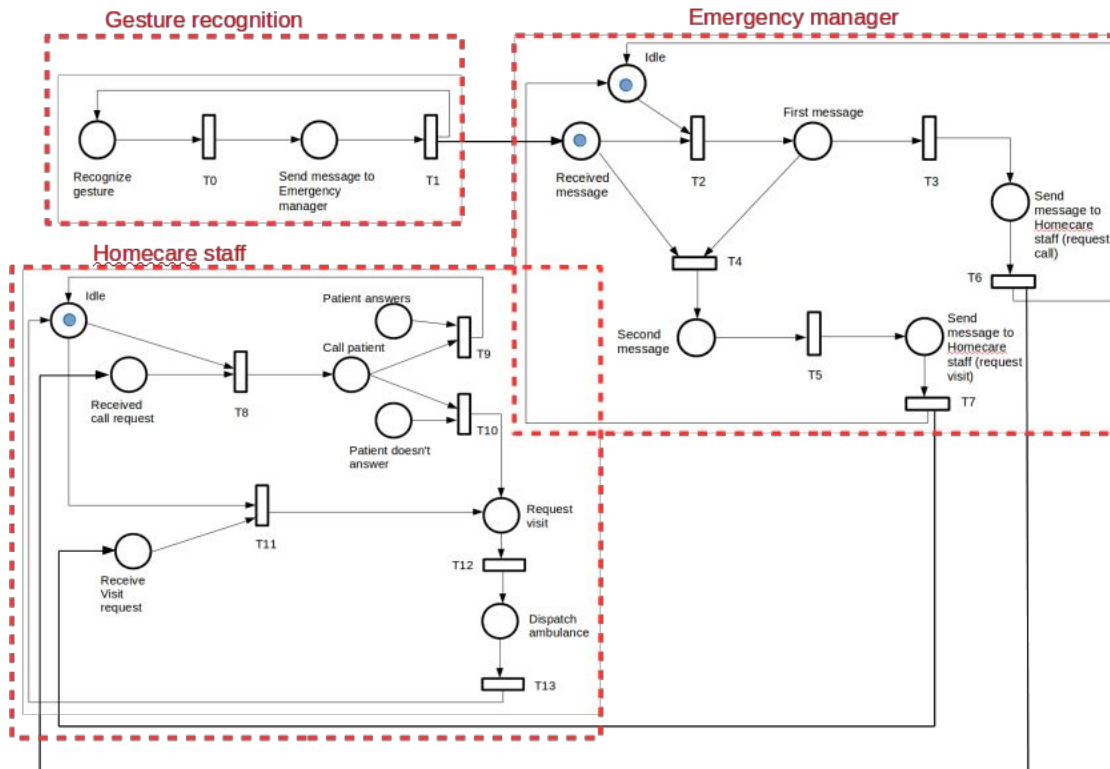
1. At the beginning everything is in the initial (idle) state



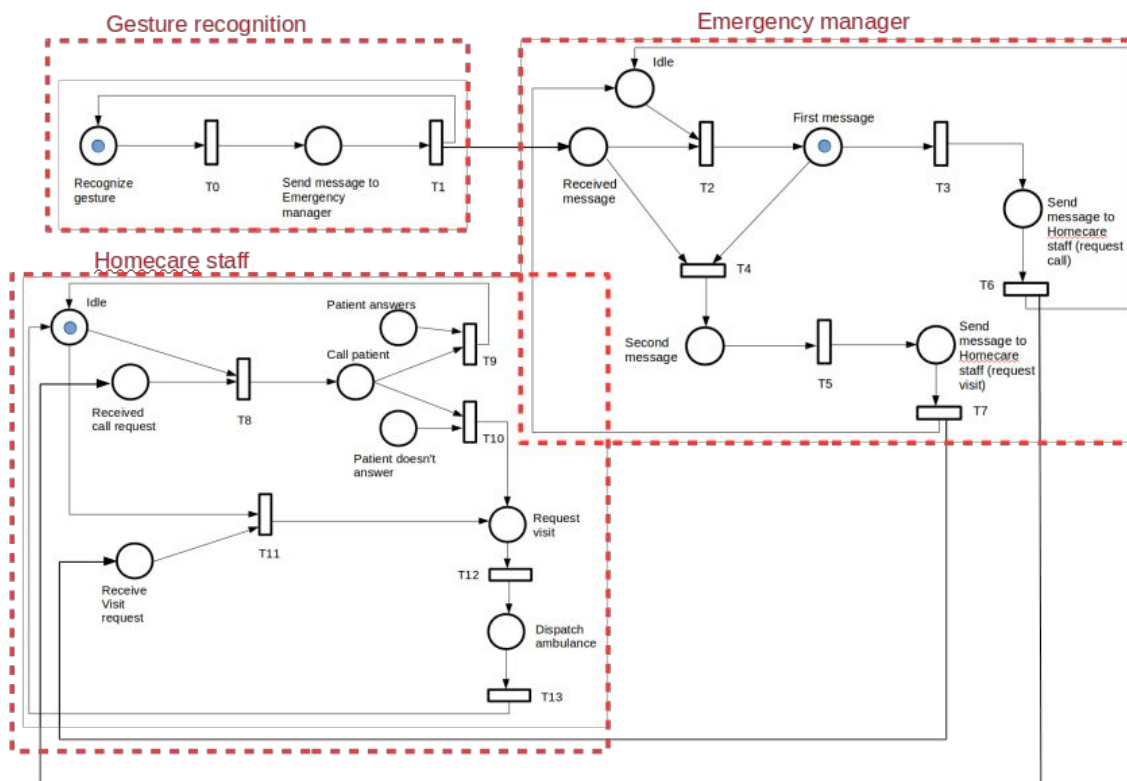
2. The patient makes the predefined gesture



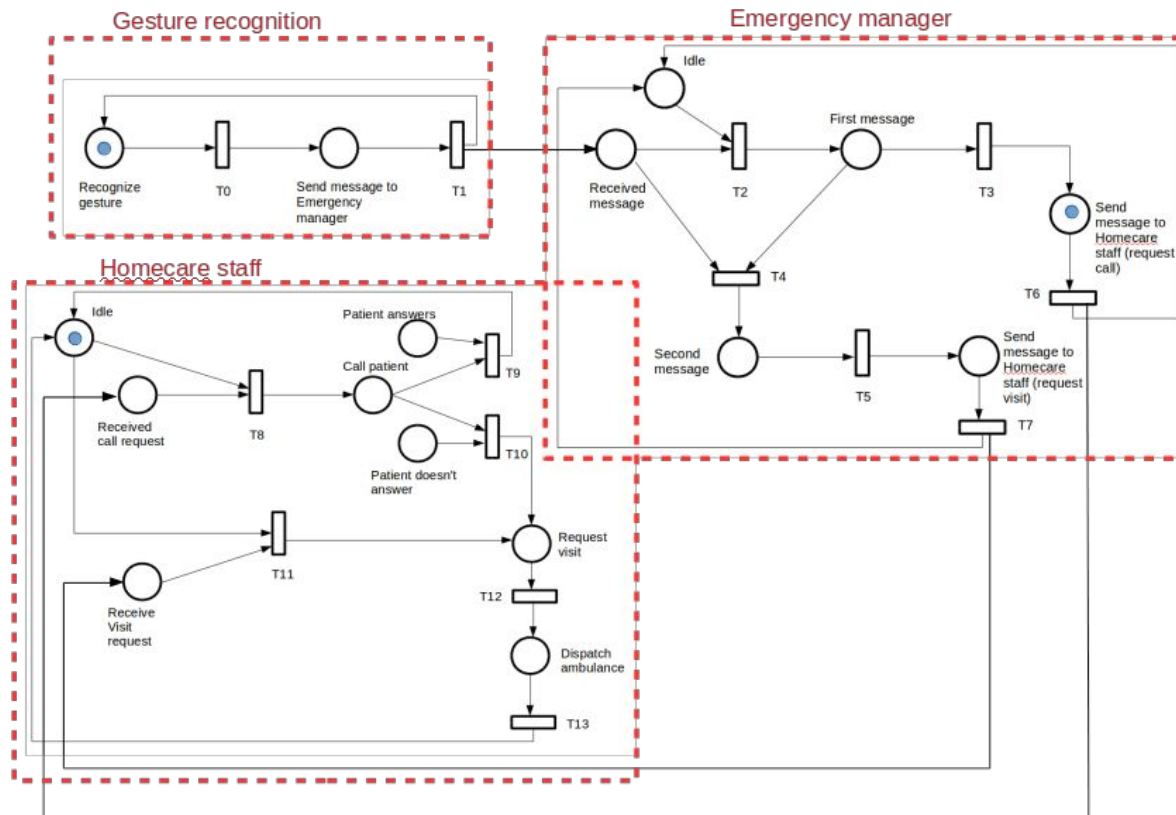
3. The GR cell sends a message to the EM cell



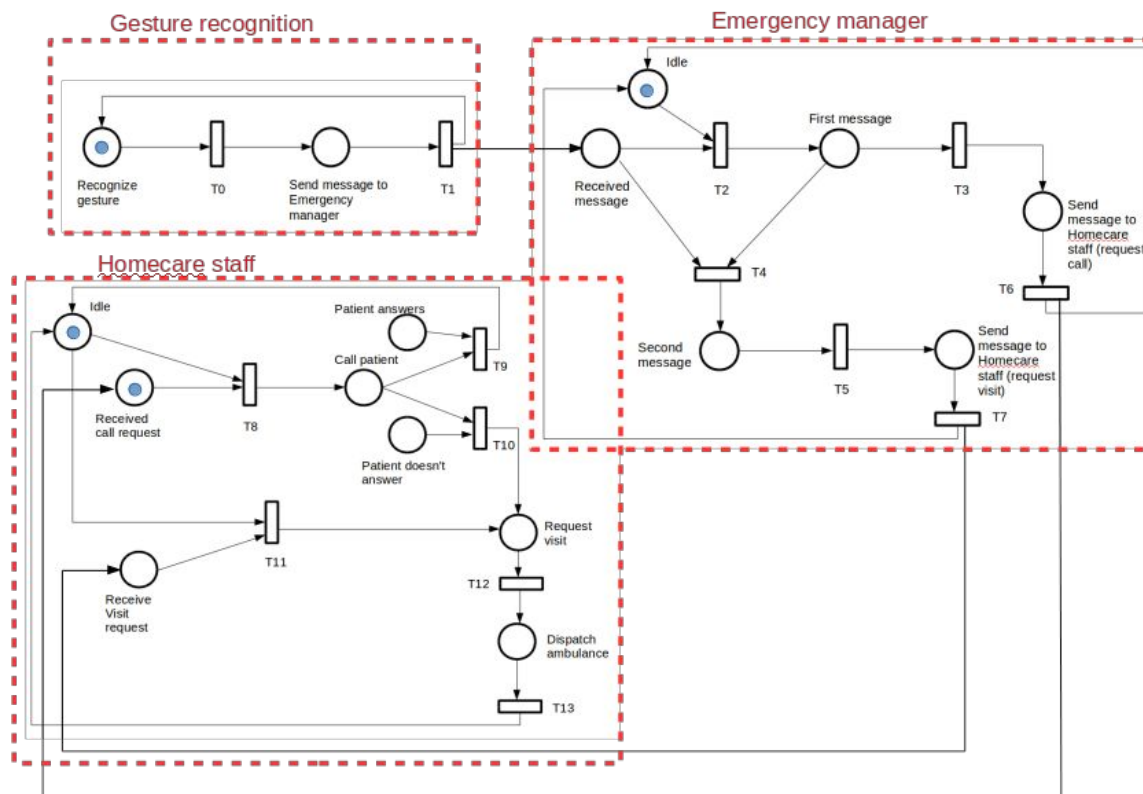
4. The EM cell acknowledges that this is the first message received



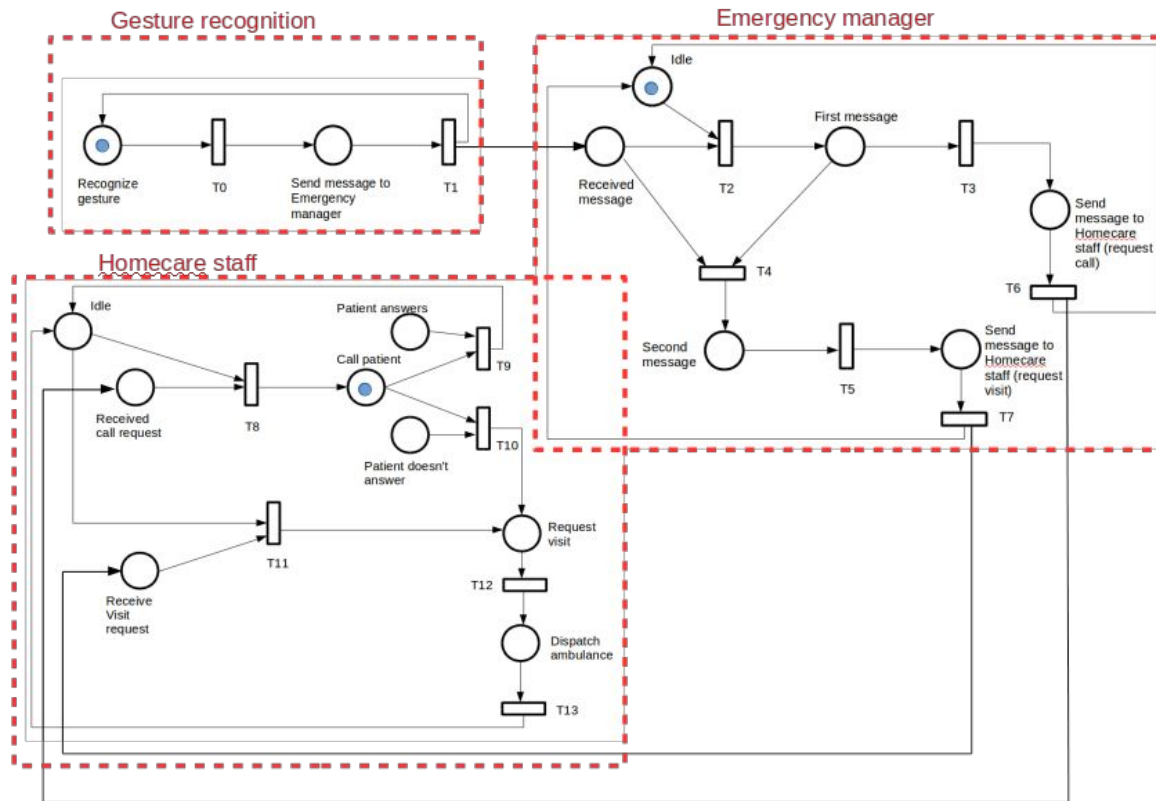
5. The EM cell makes a decision to request HS for a call



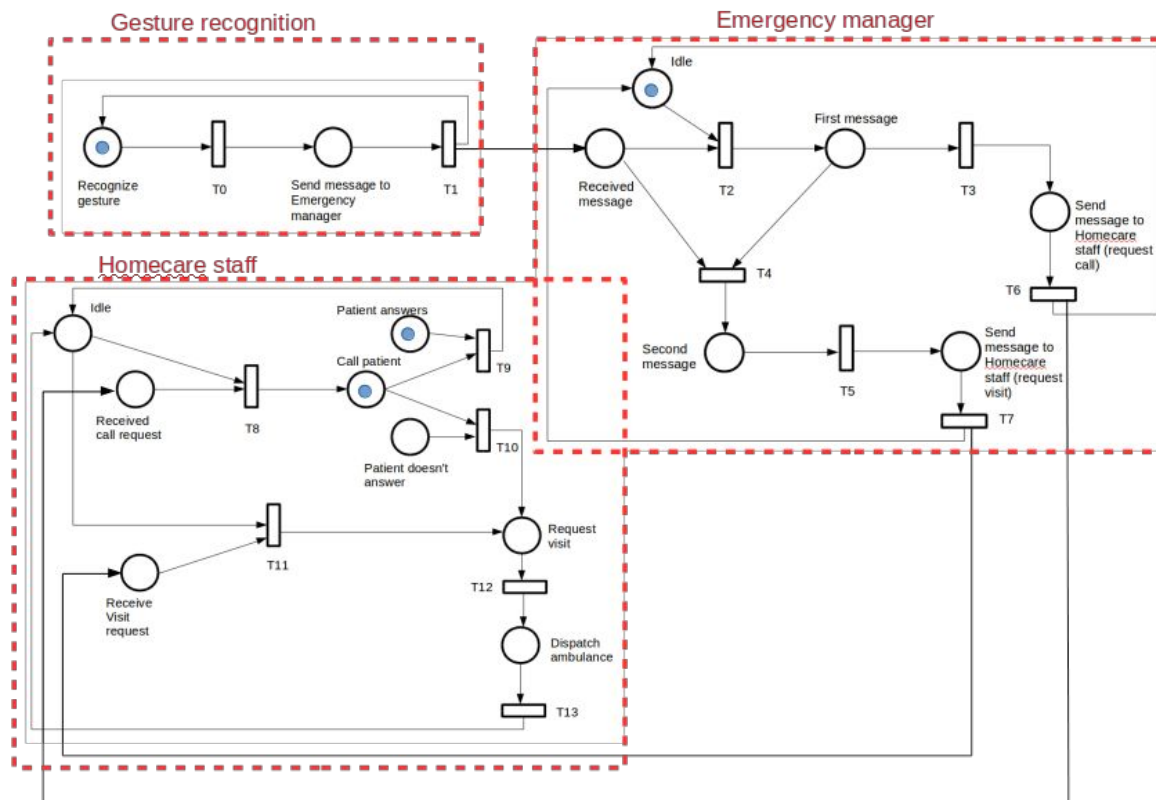
6. The EM sends a call signal to the HS cell



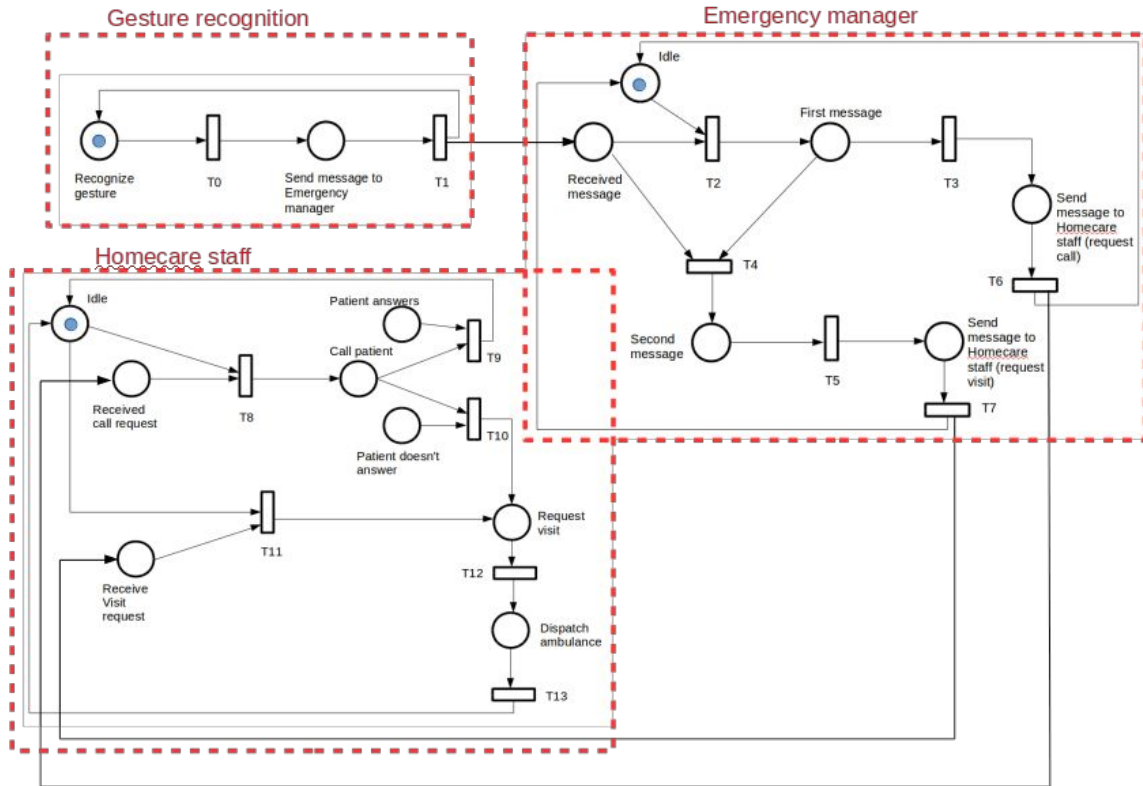
7. The HS cell issues a call



8. The patient answers the phone

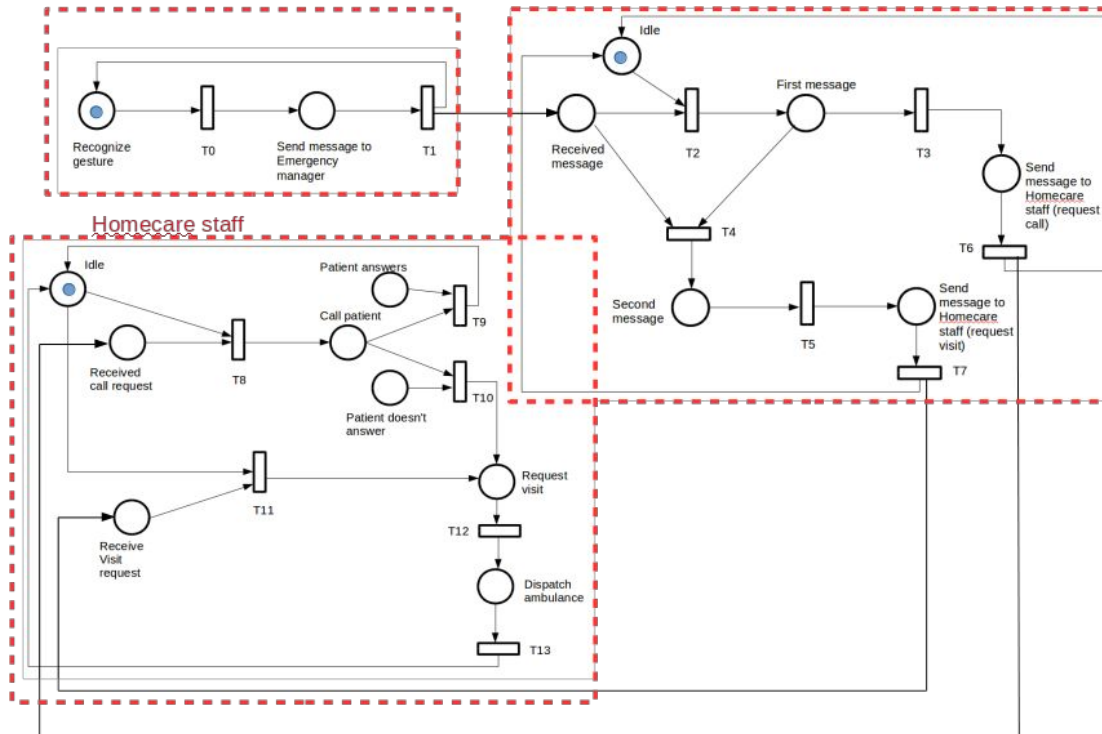


9. After the phone call, the system returns to the initial idle state

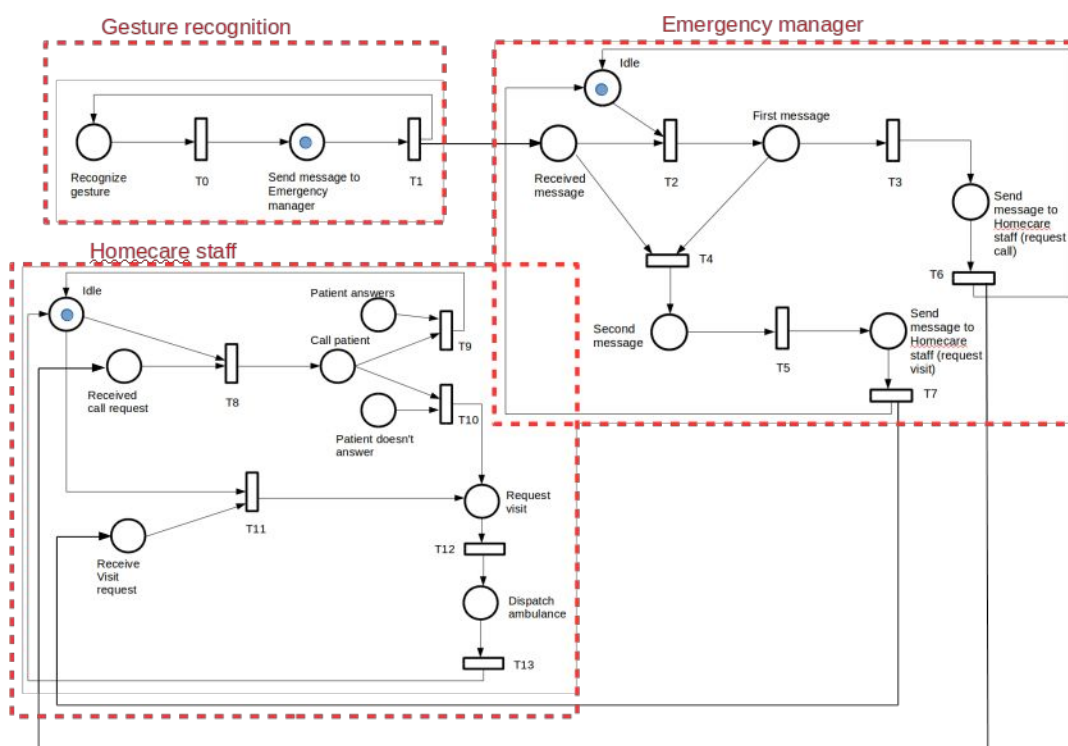


Scenario 2: the patient asks for help twice, therefore the homecare staff dispatches an ambulance to visit the patient.

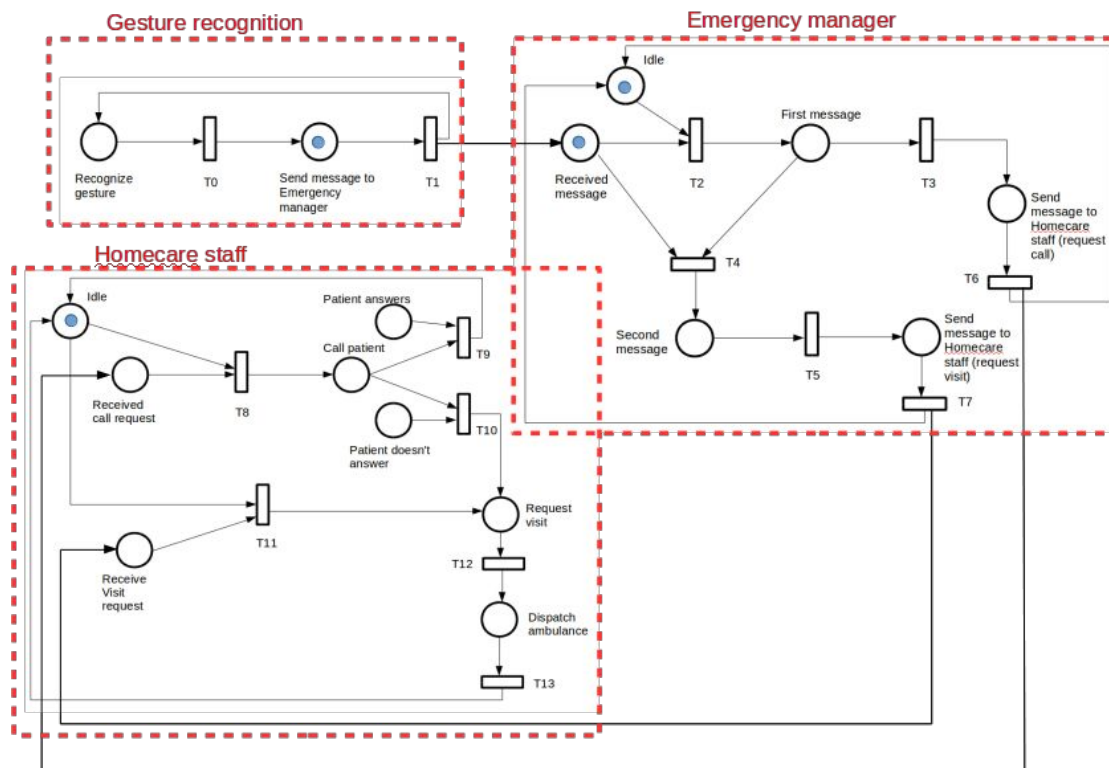
1. At the beginning everything is in the initial (idle) state



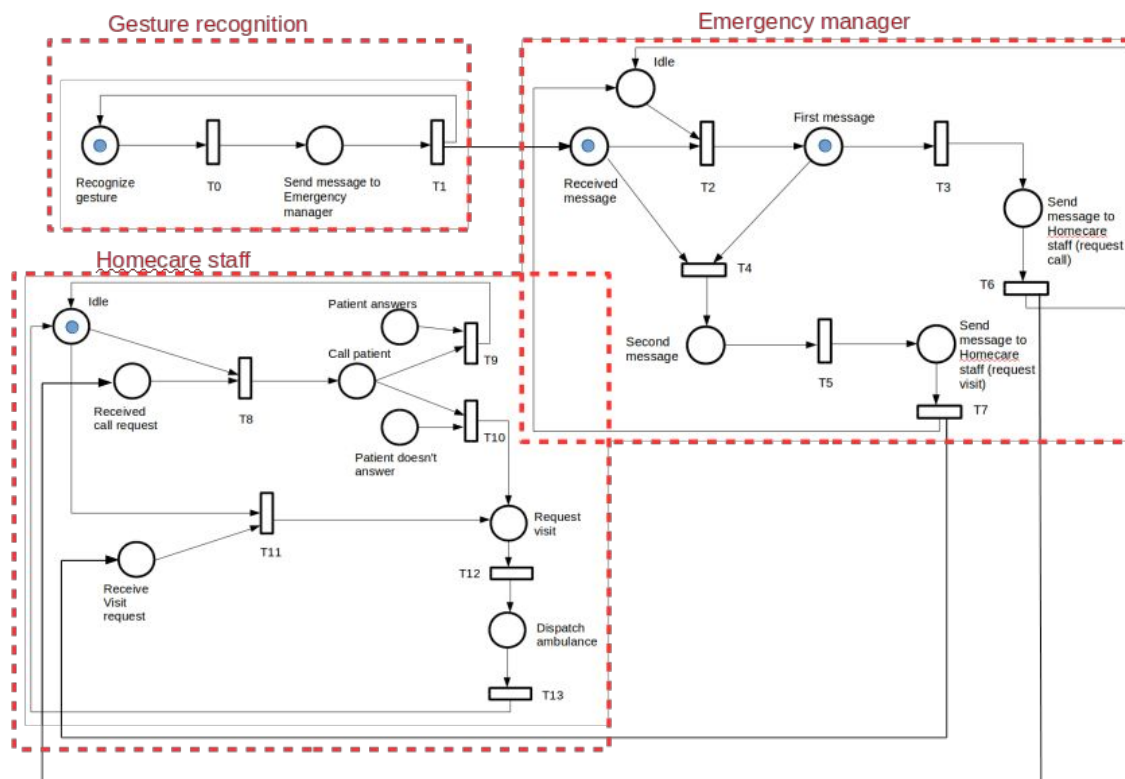
2. The patient makes the predefined gesture



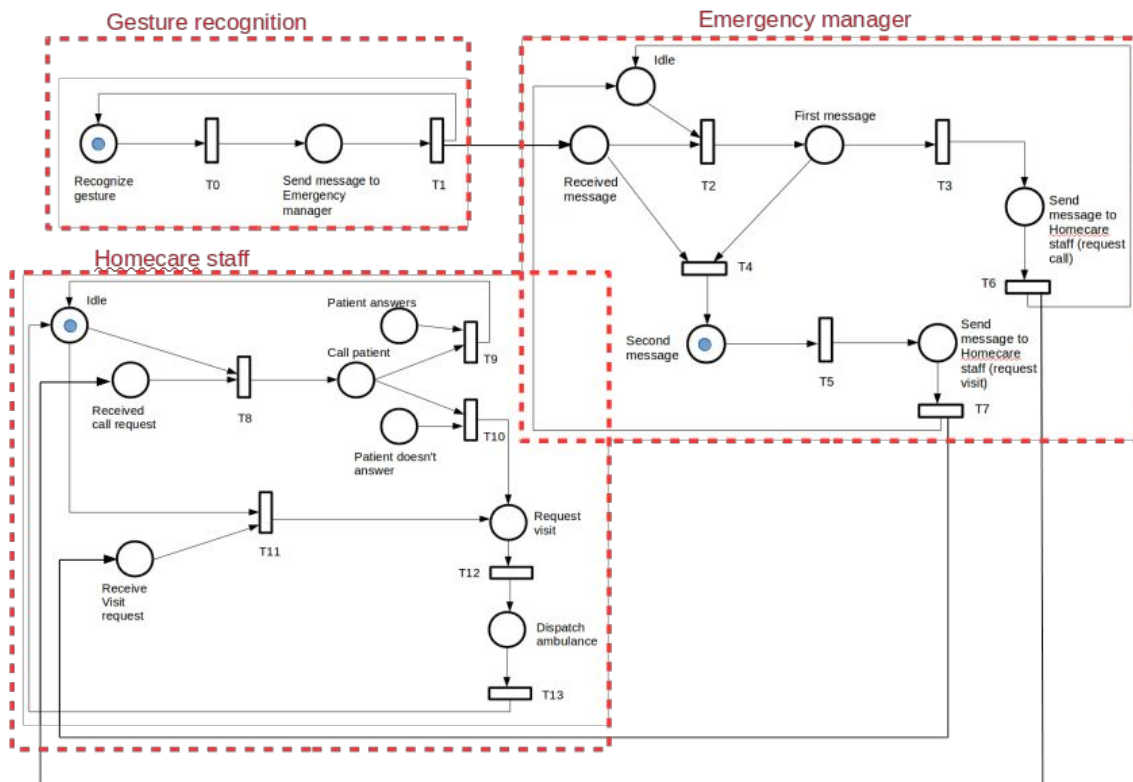
- The GE cell sends a message to the EM cell, and at the same time the patient makes a second gesture



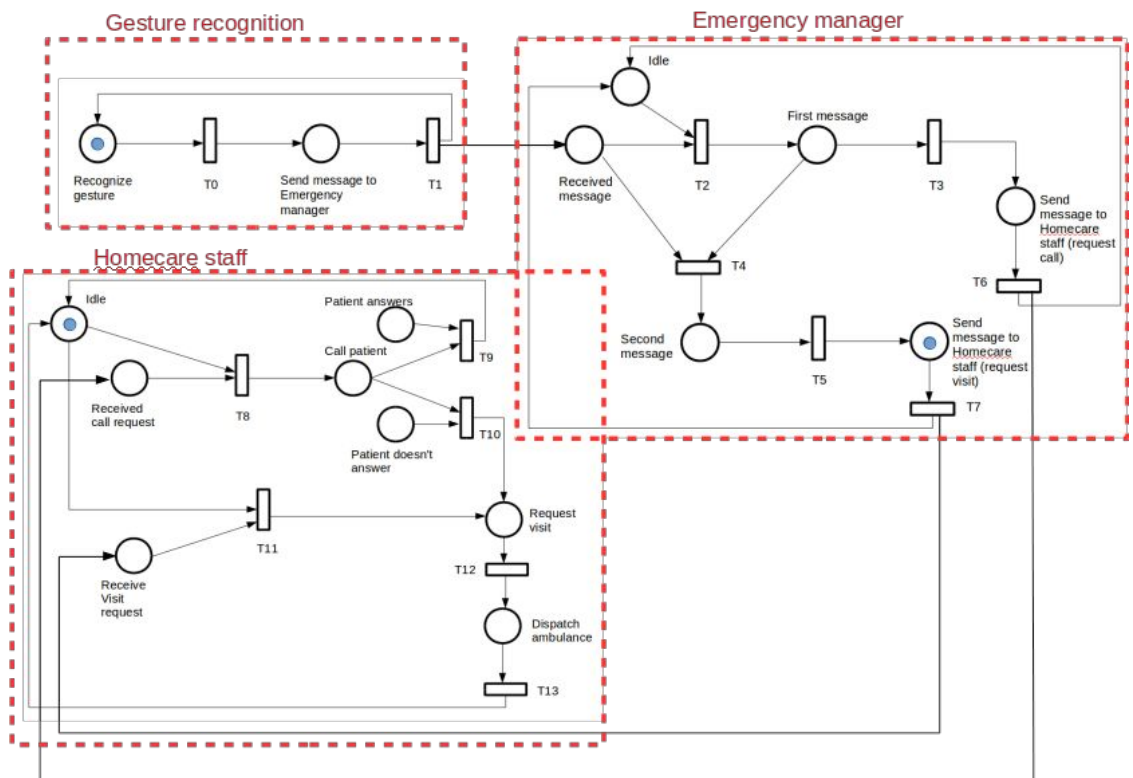
- The GE cell sends another message to the EM cell. The EM cell acknowledges that it received the first message, and at the same time it receives a second message



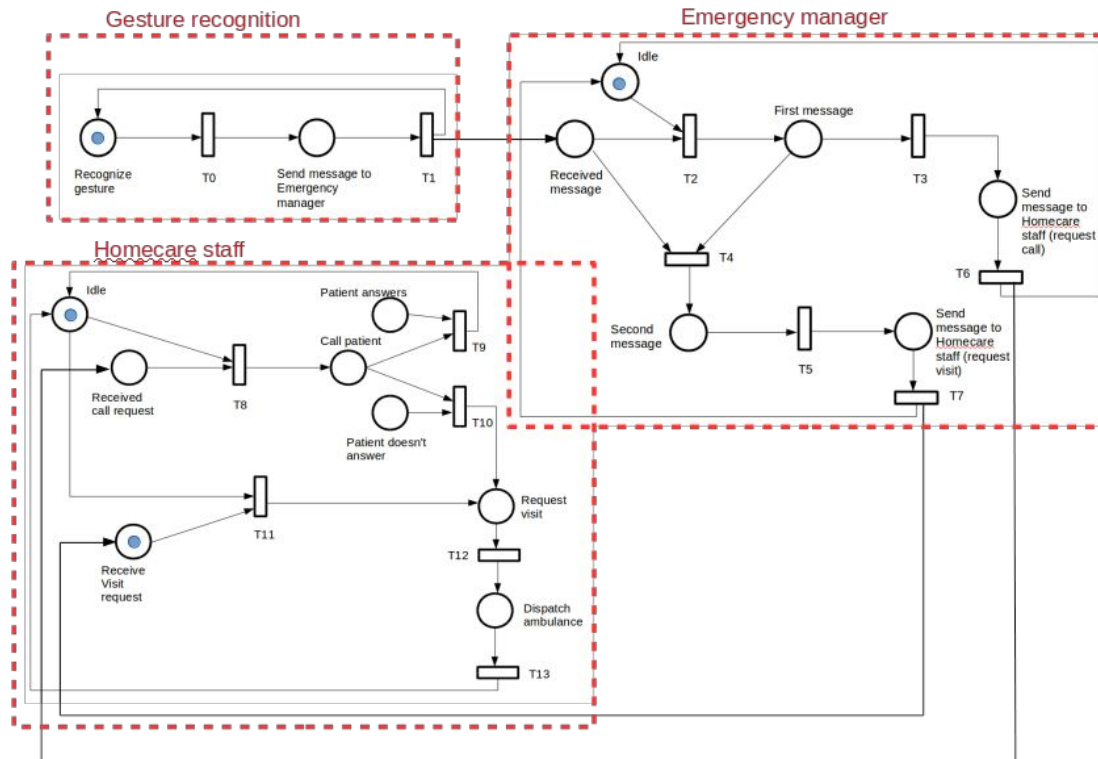
5. The EM cell transitions to a state in which it received two messages



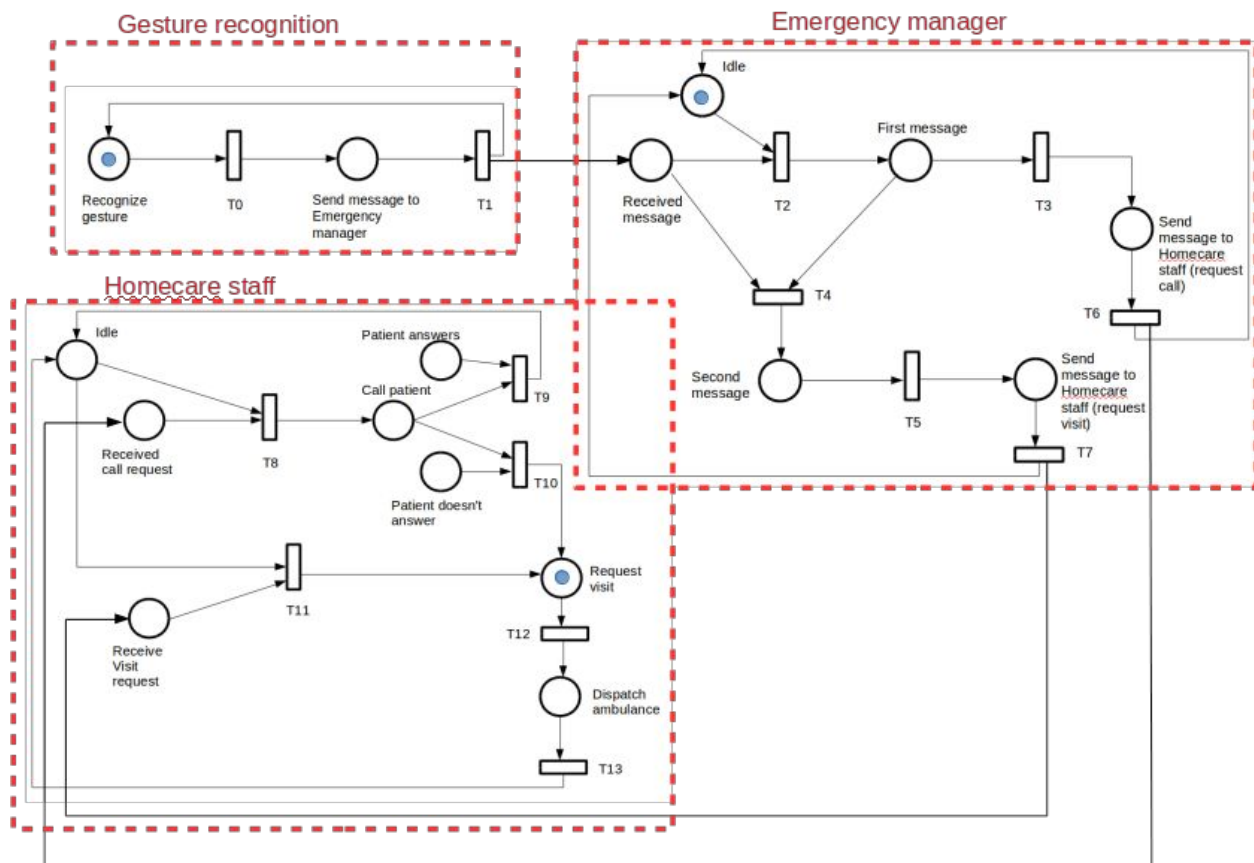
6. The EM cell decides to issue a visit request to the HS cell



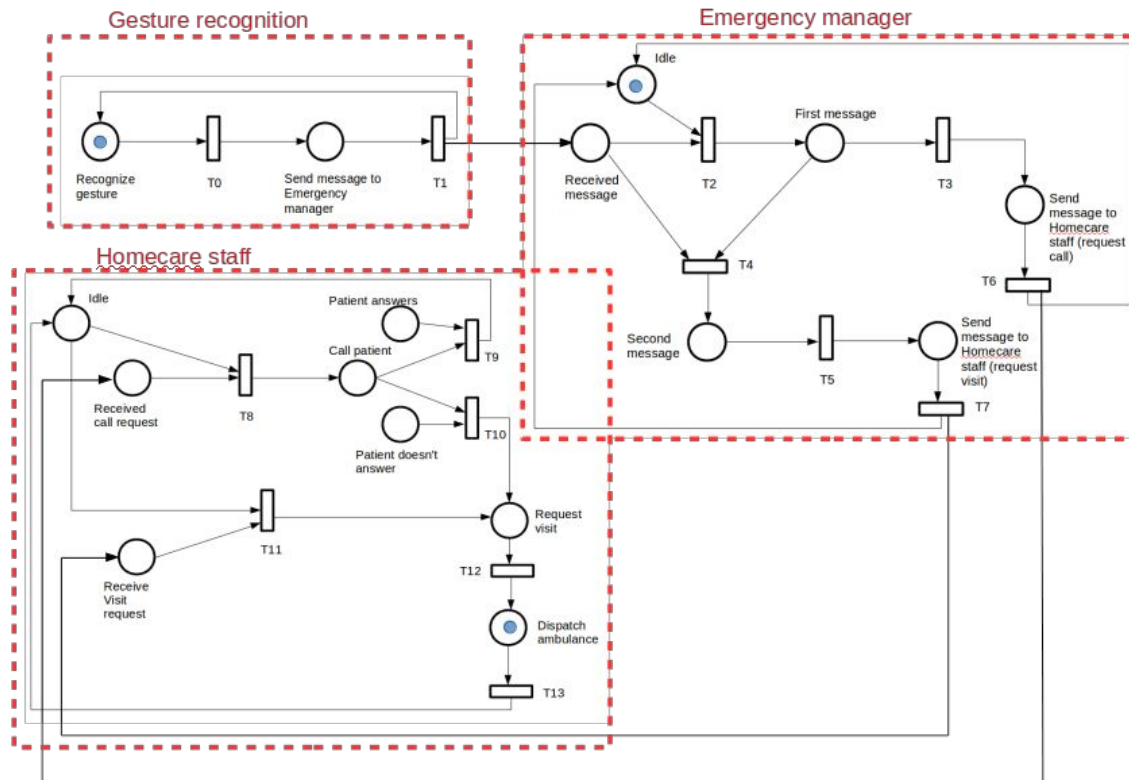
7. The HS cell receives the visit request from the EM cell



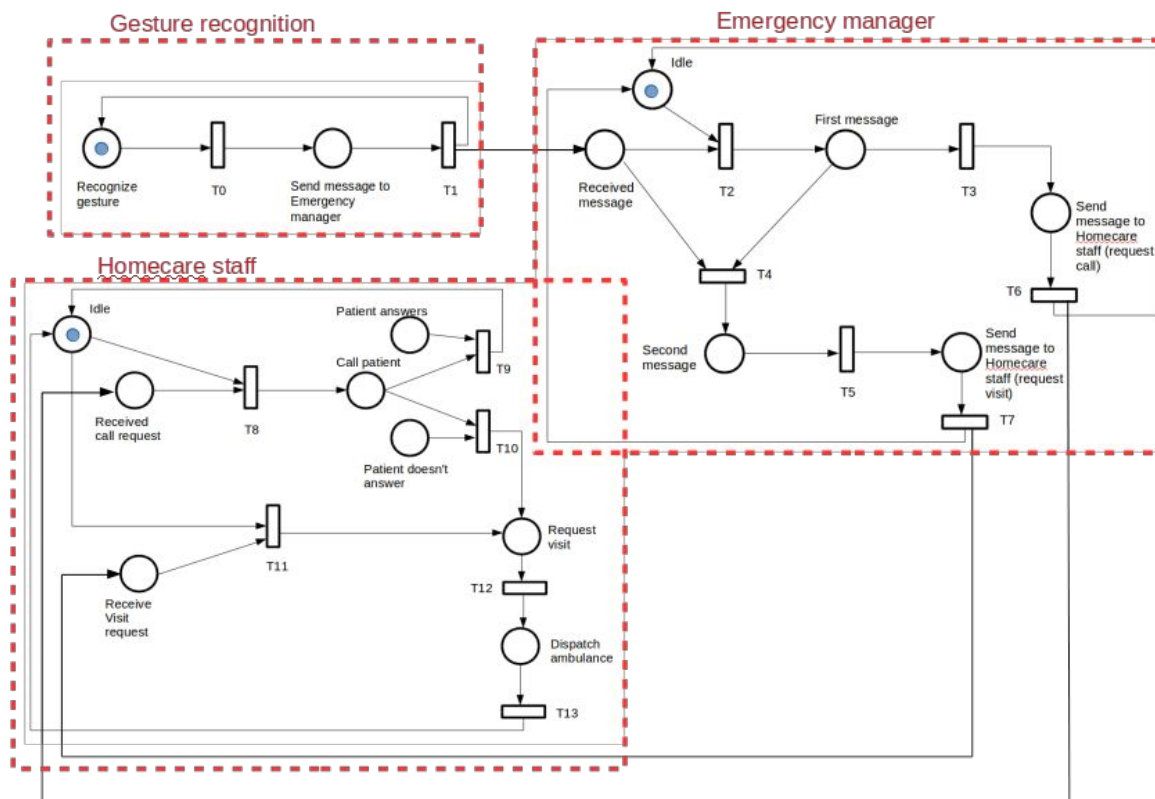
8. The HS cell decides to request a visit



9. The HS cell dispatches an ambulance to visit the patient

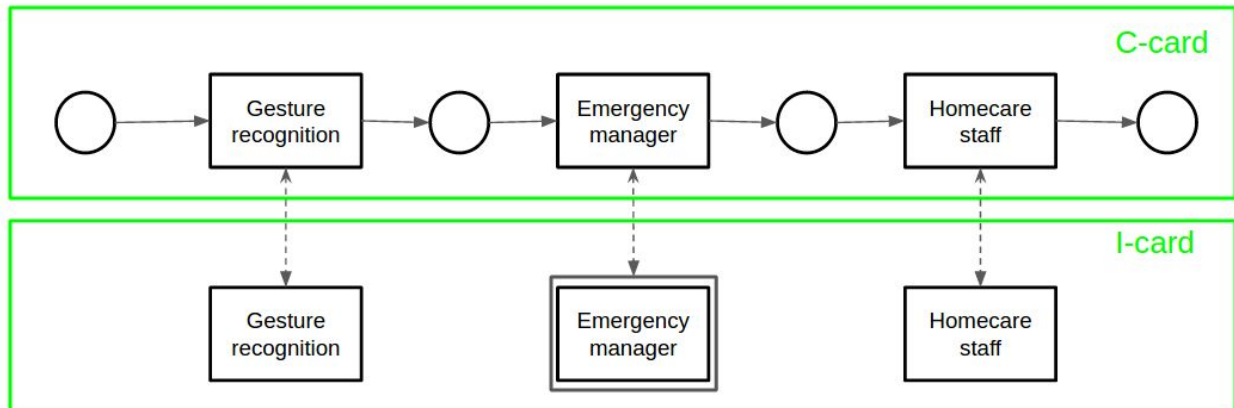


10. After dispatching the ambulance, the system returns to the initial idle state



Part c)

The {C-card, I-card} pair for the health care system is:



The Petri net associated with the system is:

