(a) Convert the active index you constructed in Exercise #2 into a Petri net (or an E-net).

My version of active index can have several gesture recognition per person, and one emergency manager and one homecare staff can handle with all patient information and gesture recognition’s ID information. I omit the several gesture recognitions, but it can easily build by sending “Patient Smith Needs Help”, his contact number and address information instead of sending “I Need Help” message. There are three waiting statuses.

(b) Take the diagram you drew in part (c) of Exercise #2. Redraw it here (because you may want to make some changes), and now use the marked Petri net to illustrate the scenario. You can draw a sequence of marked Petri net to show how the system works.
Now I can show the general scenario first that can be happened on the personal health care system. I marked the enabled transition as yellow for each step.

1. Detect patient hand gestures

2. Send message “Patient needs help” to emergency manager

3. The emergency manager receives the message for the first time

4. Send message “call patient” to the homecare staff
5. The homecare staff receives message “call patient”

6. The homecare staff makes a call to the patient and can reach the patient

Note that other scenarios are also possible as below.

- When the homecare staff cannot reach the patient
- The emergency manager receives the message “Patient Needs Help” more than one time
• The emergency manager sends message “Visit patient” to the homecare staff

• The homecare staff receives the message “visit patient”

• The homecare staff visits the patient right away (This can be from T10 or T8.)
(c) Suppose the emergency manager index cell corresponds to a super-component, i.e., the emergency manager can enumerate a number of feasible solutions and select the most appropriate one. Draw the personal health care system as a pair of (I-card, C-card), and convert it into an ordinary Petri net. (To do that, you need to assume a specific number of feasible solutions for the emergency manager to evaluate. Let us say three.)

1) The personal health care system as a pair of I-card and C-card.

![Personal Health Care System Diagram](image1)

2) Petri net for the personal health care system. The emergency manager index cell corresponding to a super-component and it has three feasible solution for the emergency manager to evaluate.

![Petri Net Diagram](image2)