CS2310: Exercise 3
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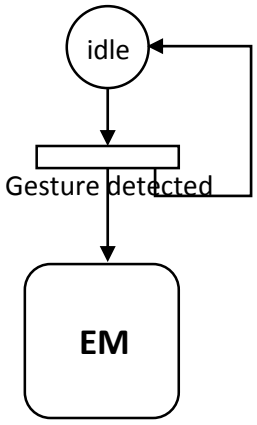
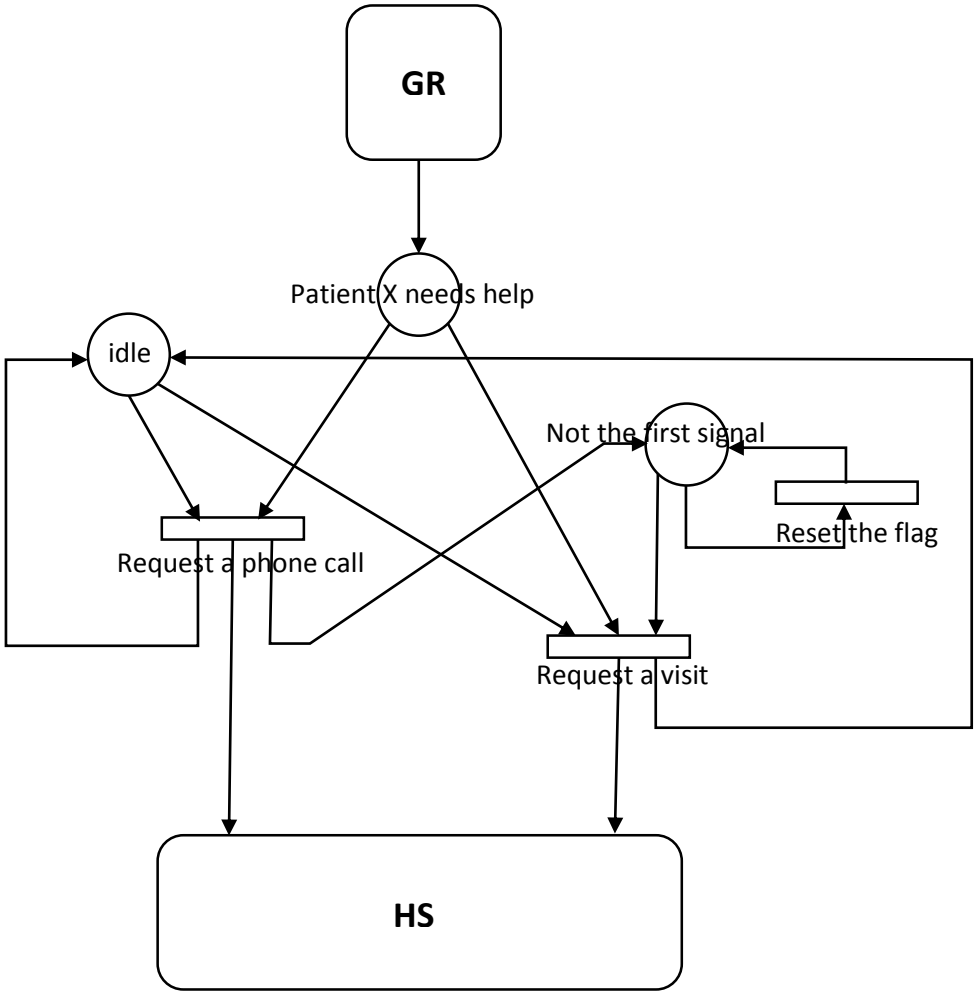
(a) Convert the active index you constructed in Exercise #2 into a Petri net (or an E-net).

Abbreviations:
GR: Gesture Recognition
EM: Emergency Manager
HS: Homecare Staff

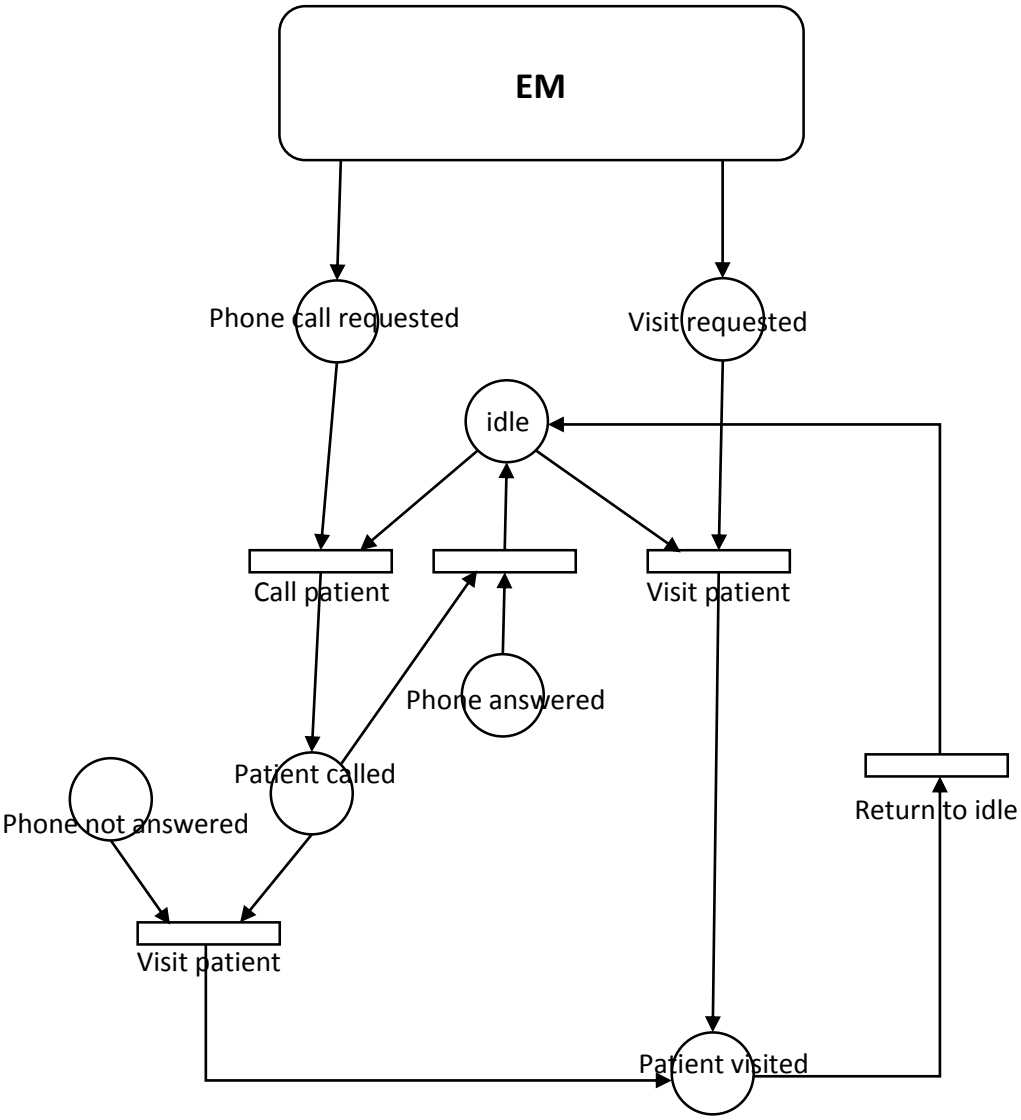
Gesture Recognition



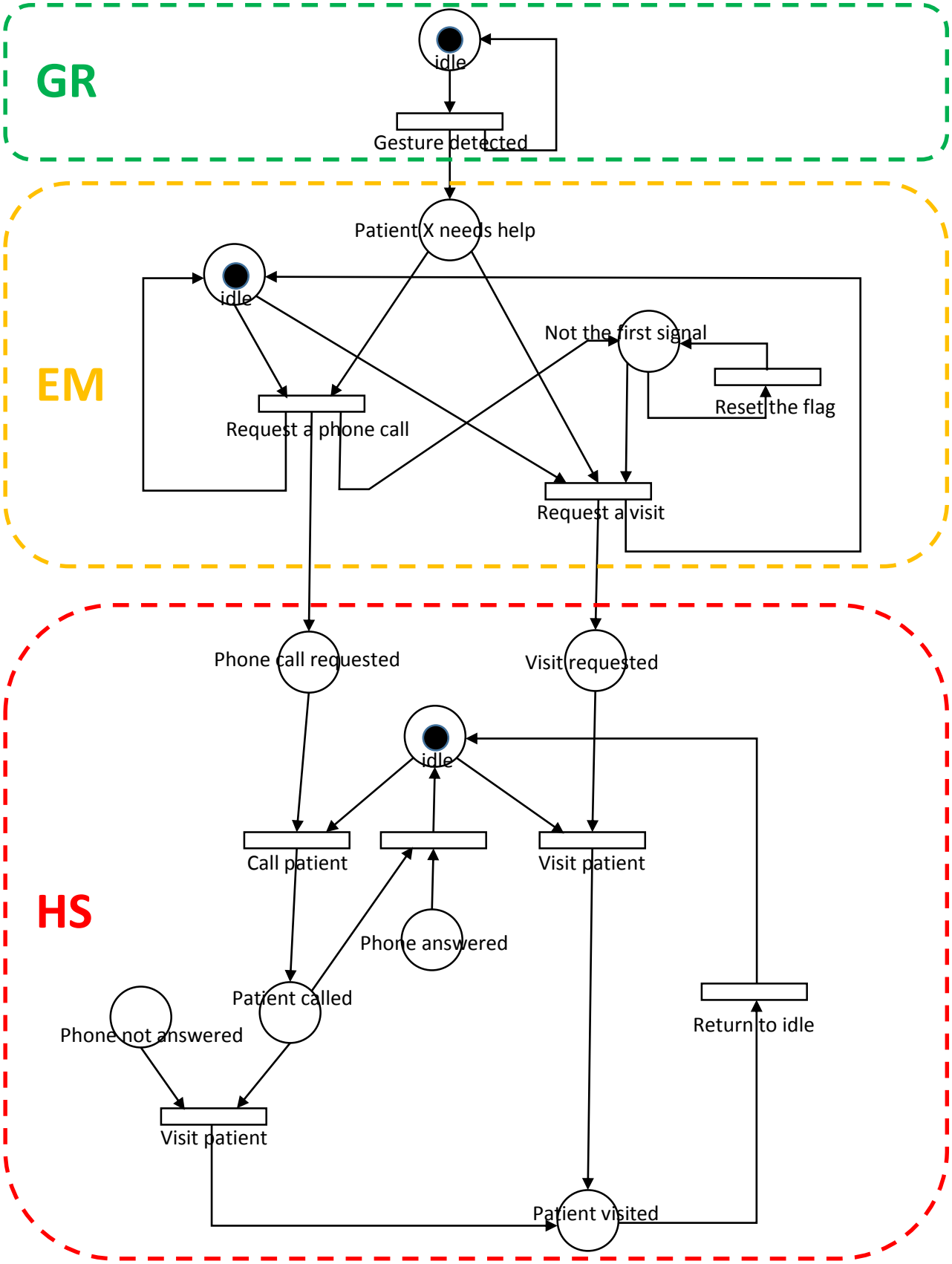
Emergency Manager



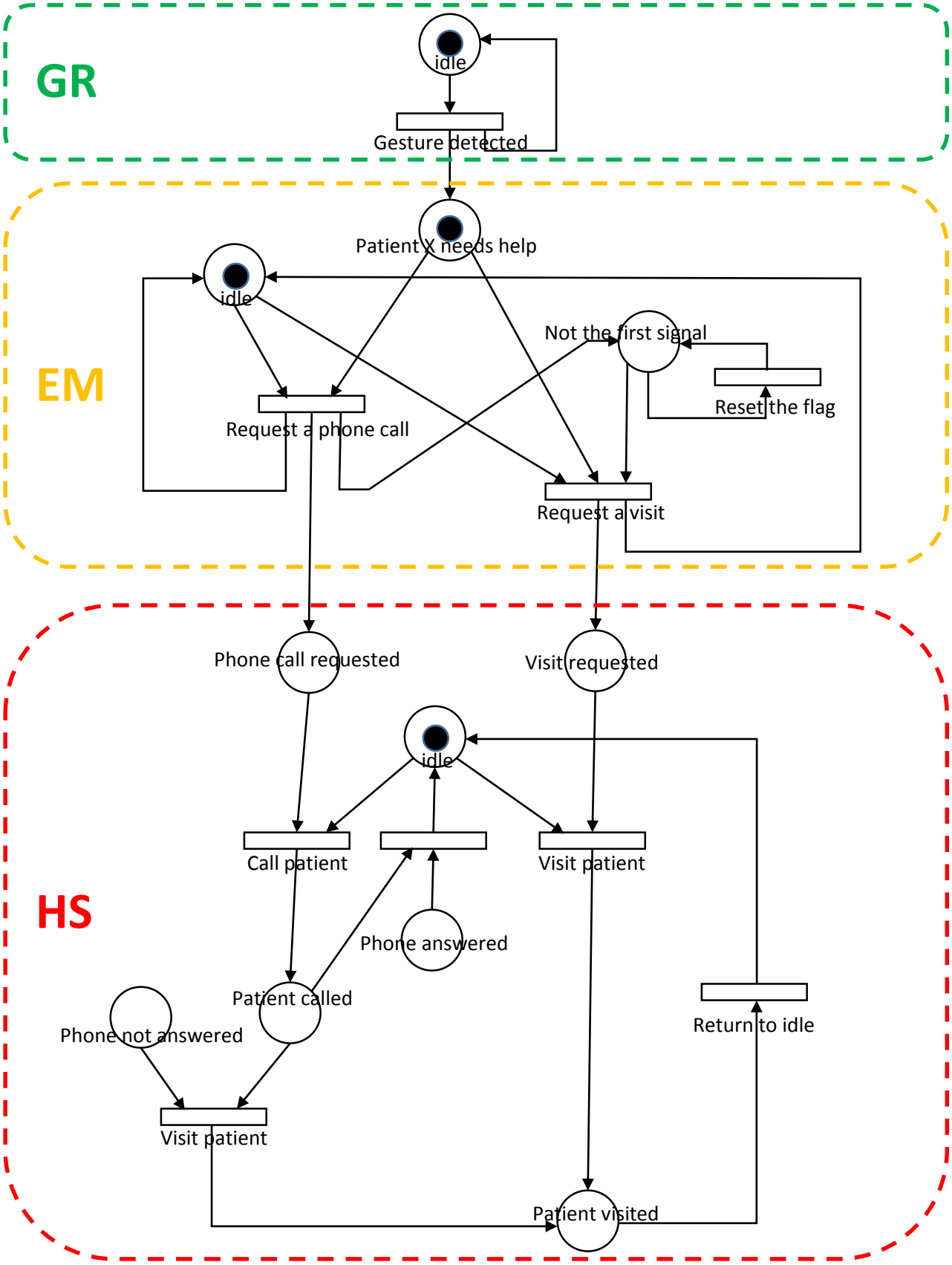
Homecare Staff



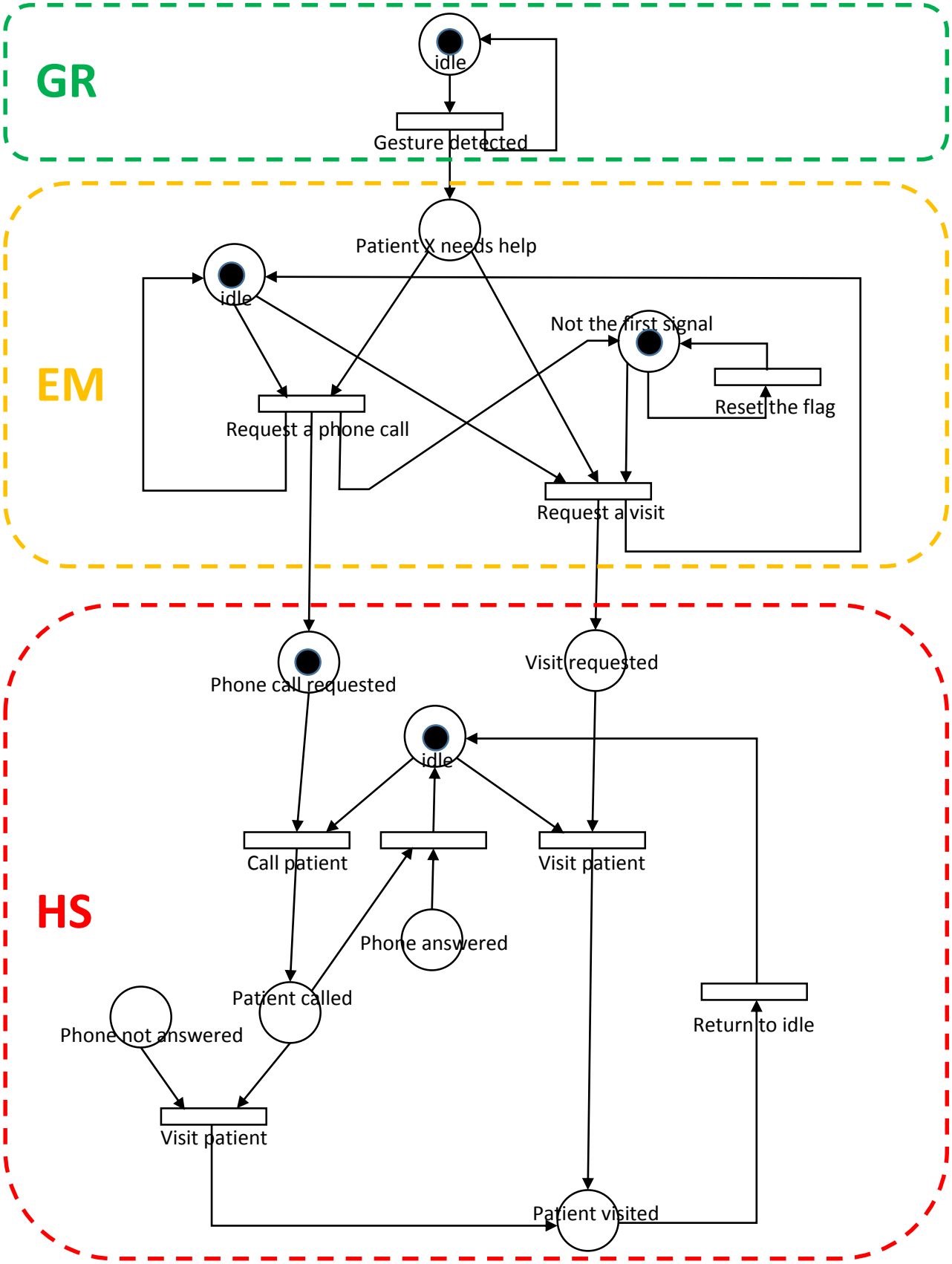
(b) Take the diagram you drew in part (c) of Exercise #2. Redraw it here (because you may want to make some changes), and now use the marked Petri net to illustrate the scenario. You can draw a sequence of marked Petri net to show how the system works.



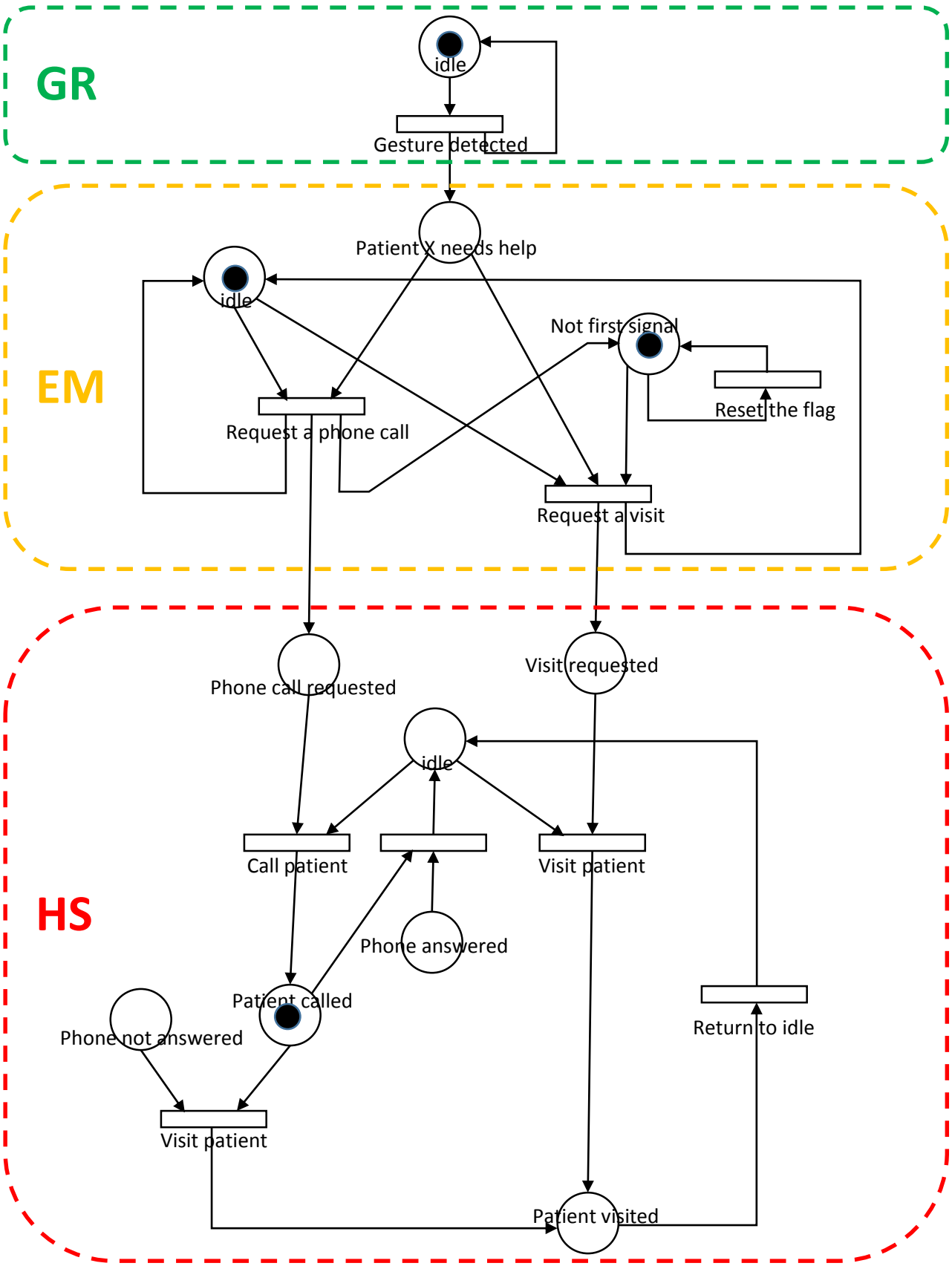
Here I will show one scenario how my Petri Net works. First GR detects a gesture:



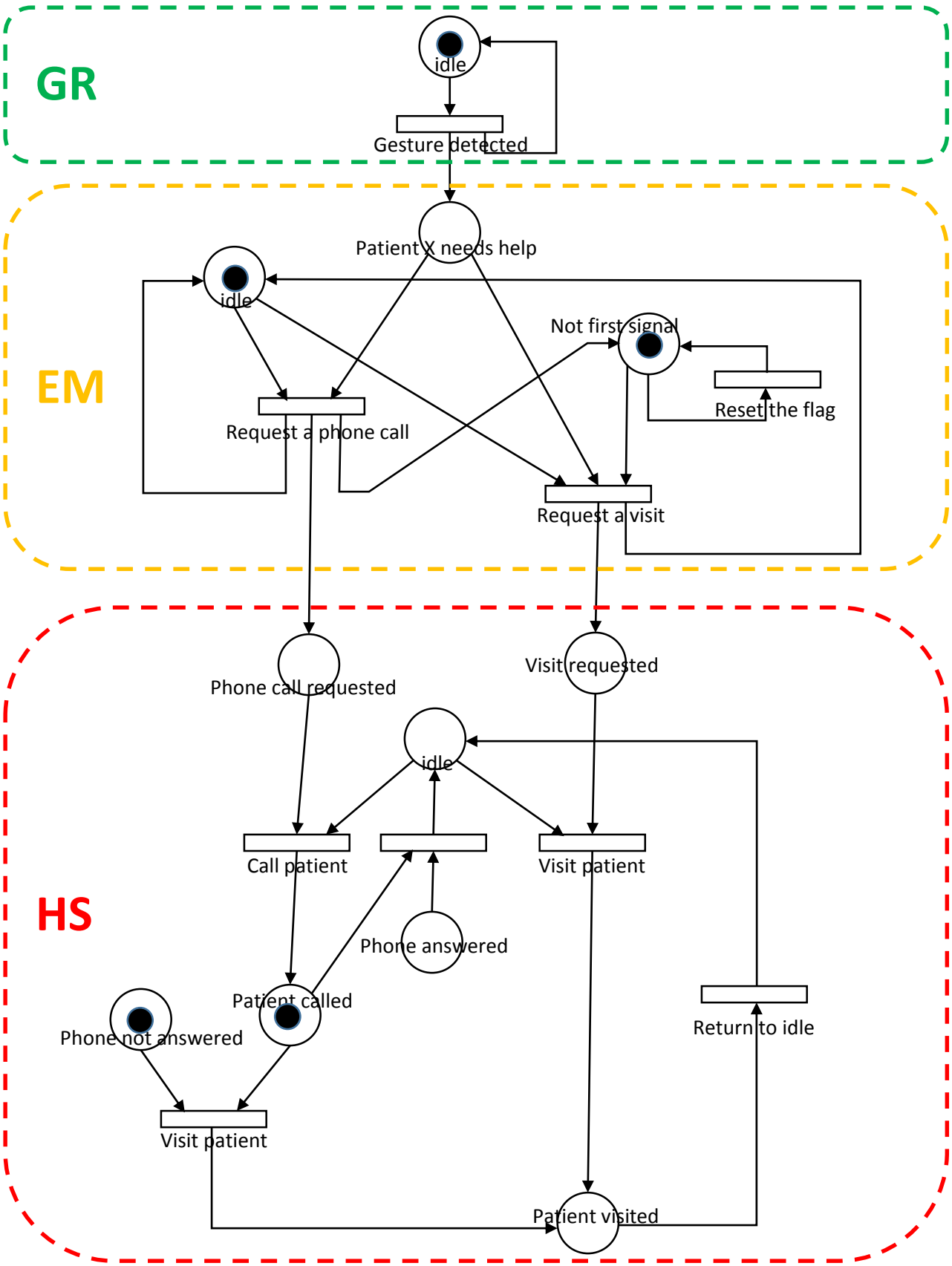
Now, since EM is in idle place and it received a message that patient needs help, it will request to call the patient in HS and it will set “Not the first signal” flag in the EM, so that after all following signals the visit of the patient will be requested.



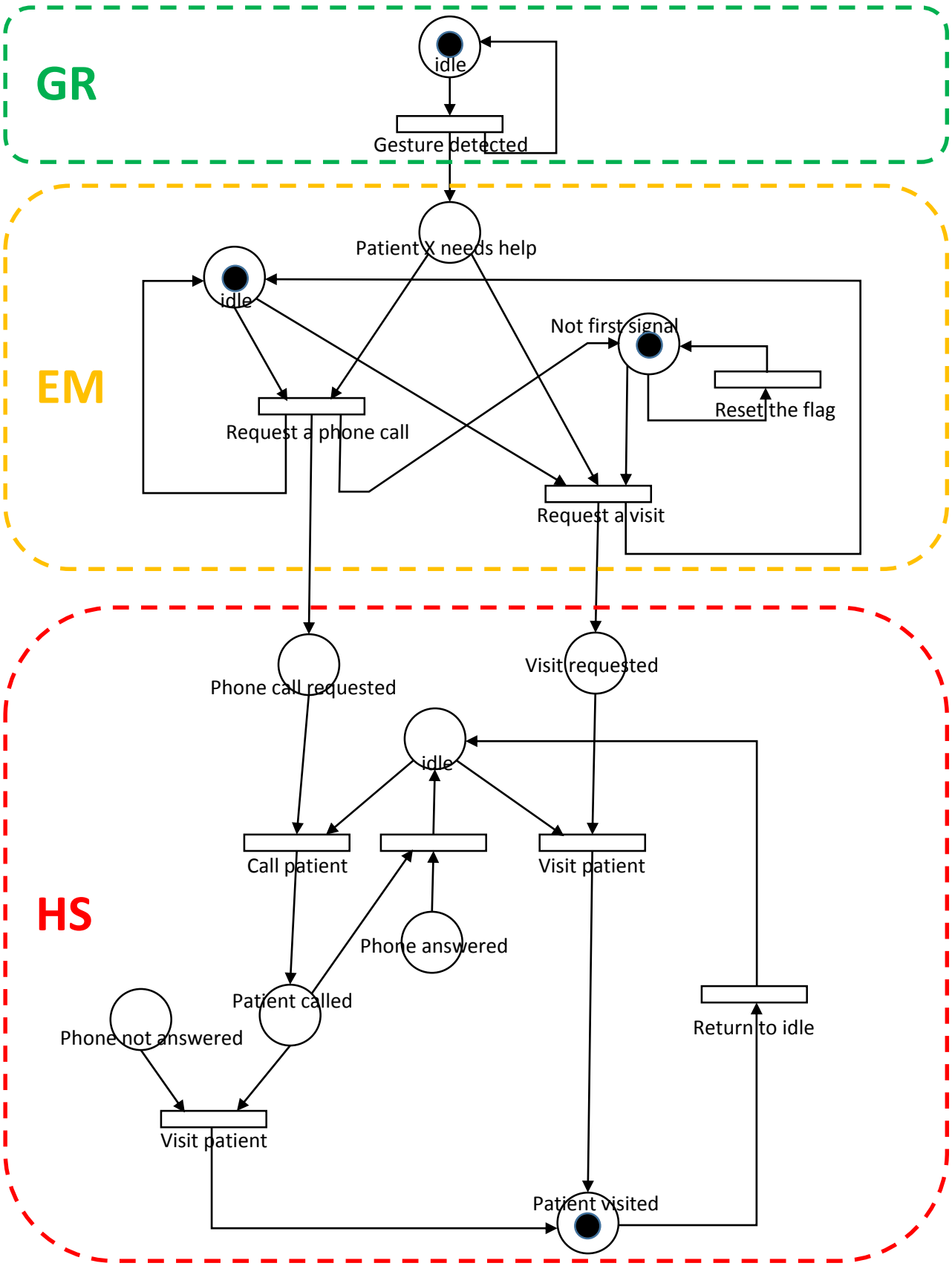
Now, since HS is in the idle place, and phone call was requested, HS calls patient and moves to "Patient called" place.



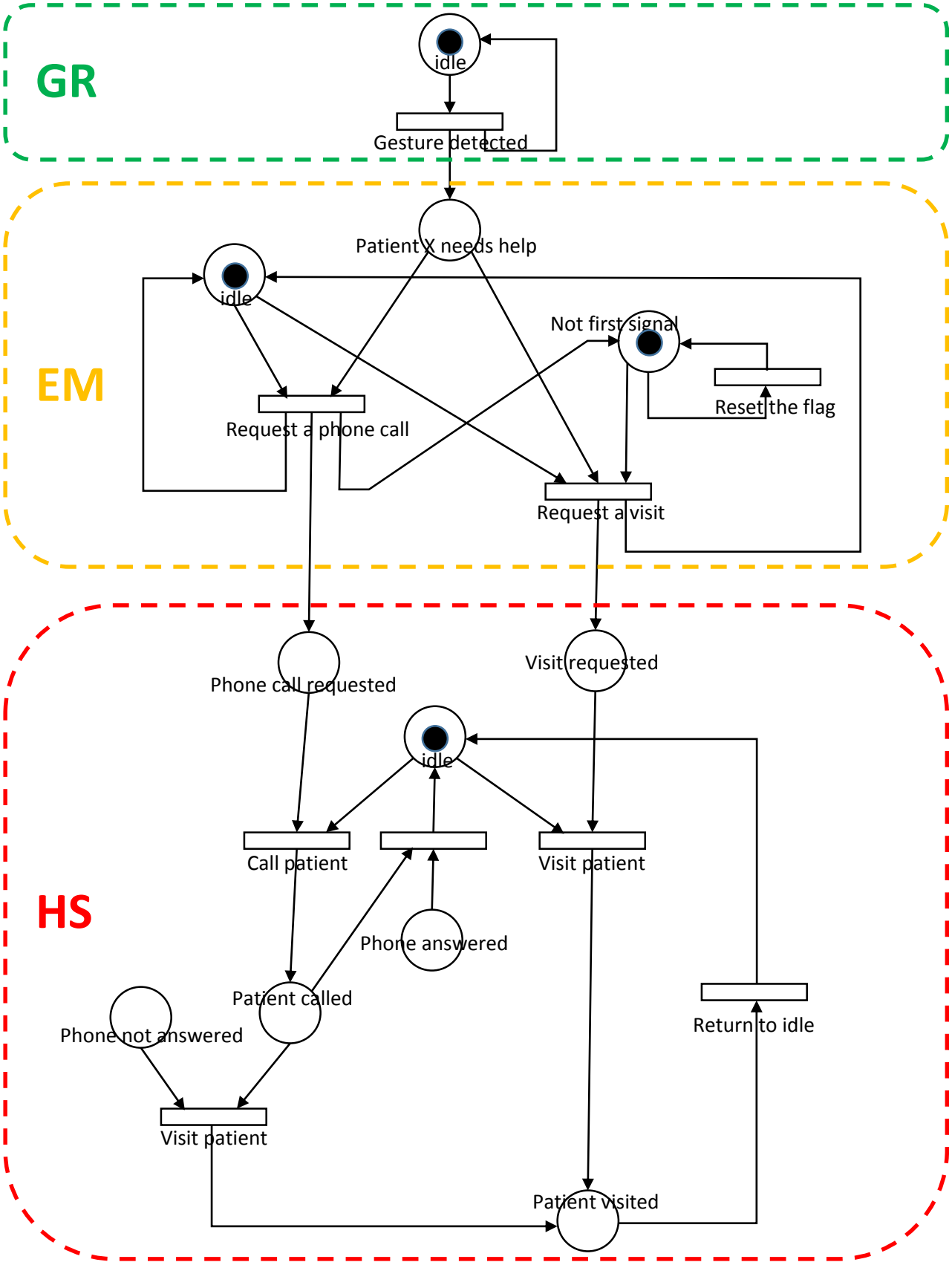
Now, since in this scenario the phone was not answered by a patient, a new token appears in the "Phone not answered" place.



Now, since the patient was called and the phone was not answered, HS visits the patient, and the token moves to “Patient visited” place.



And finally we are returning to the idle place in HS.



(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.)