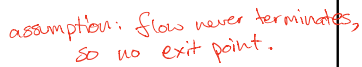


# Heart Rate Monitor App



receive  
"Start  
Monitoring"

```

graph TD
    Entry((entry)) --> StartMonitoring[/start monitoring/]
    StartMonitoring --> CalculateActivityLevels([Calculate activity levels])
    CalculateActivityLevels --> SendActivityLevel[/Send activity level/]
    SendActivityLevel --> CalculateActivityLevels
  
```

entry

measure BP signal

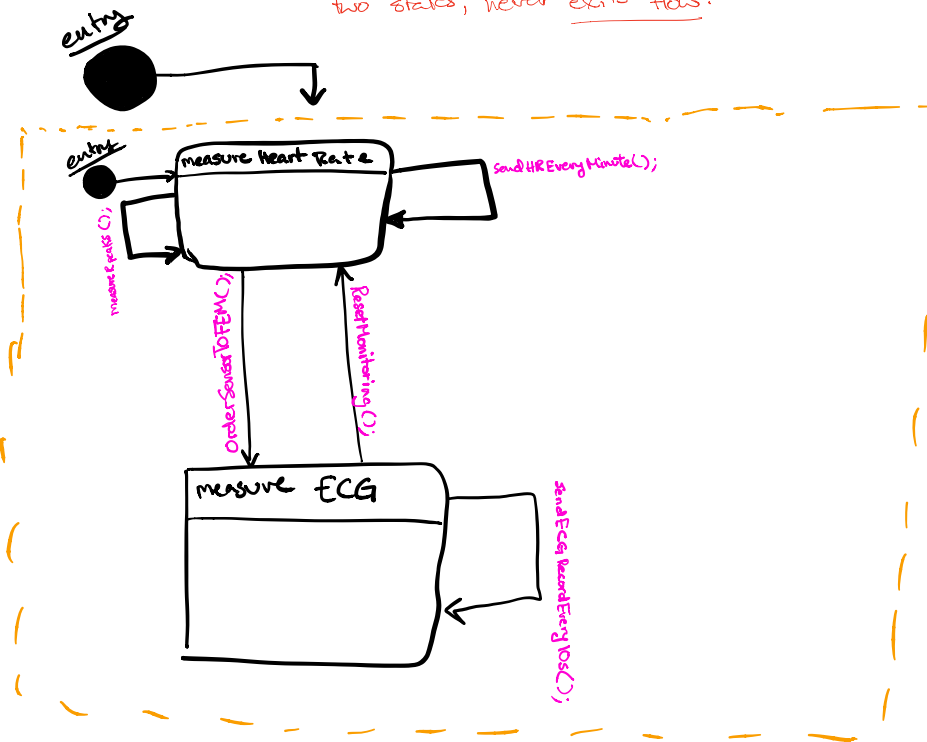
measure BP

Send BP

assumption: BP monitoring signal should be constant so it should be into the feedback loop

## 2. UML STATE DIAGRAM

assumption: switches consistently between two states, never exits flow.



## PART 2: PETRI NETS

1a) 1 - Bounded

b)  $M_0(1,0,0,1) \rightarrow T_1 \rightarrow M_1(0,1,0,1) \rightarrow T_3 \rightarrow$   
 $M_2(0,0,1,1) \rightarrow T_4 \rightarrow M_3(1,0,0,0) \rightarrow T_1$   
 $M_4(0,1,0,0) \rightarrow T_3 \rightarrow M_5(0,0,0,1)$

deadlock because  $T_4$  needs 2  
tokens to fire, and does not get  
it after the tokens merge.

2a) 2 - Bounded

b) no deadlock possible

3a) not bounded, notice  $P_3$  and  $T_5$ .

if you have  $M_x(0,0,1) \rightarrow T_5$ ,  
you will get  $M_{x+1}(0,1,1)$ .

if you take  $T_3$  from  $P_2$ , and loop the  
process,  $P_3$  will be unbounded