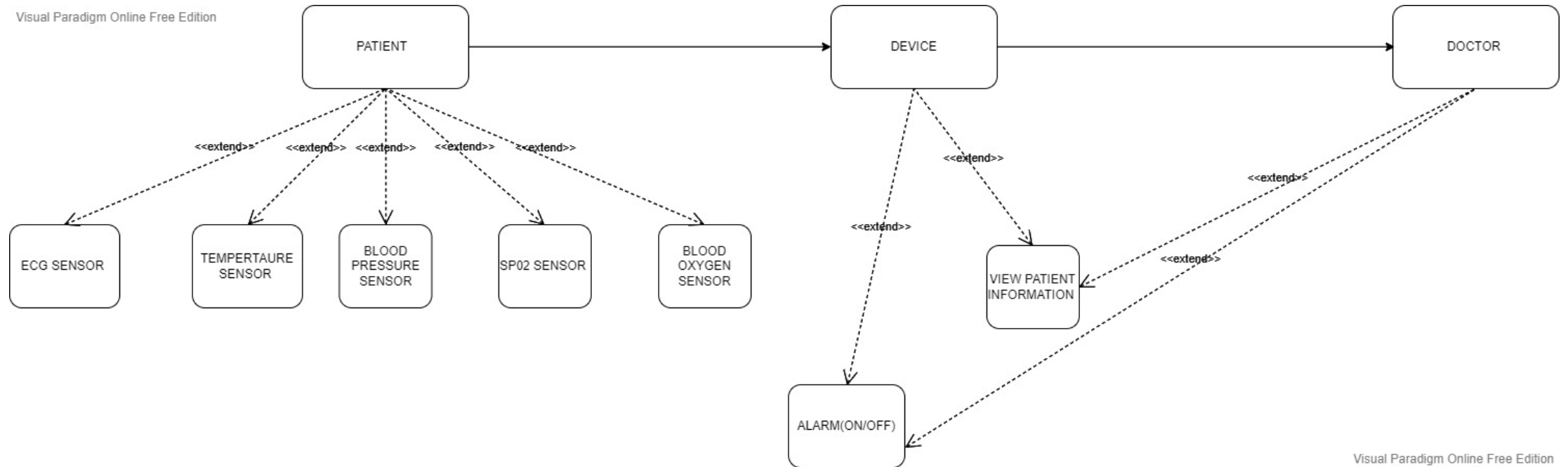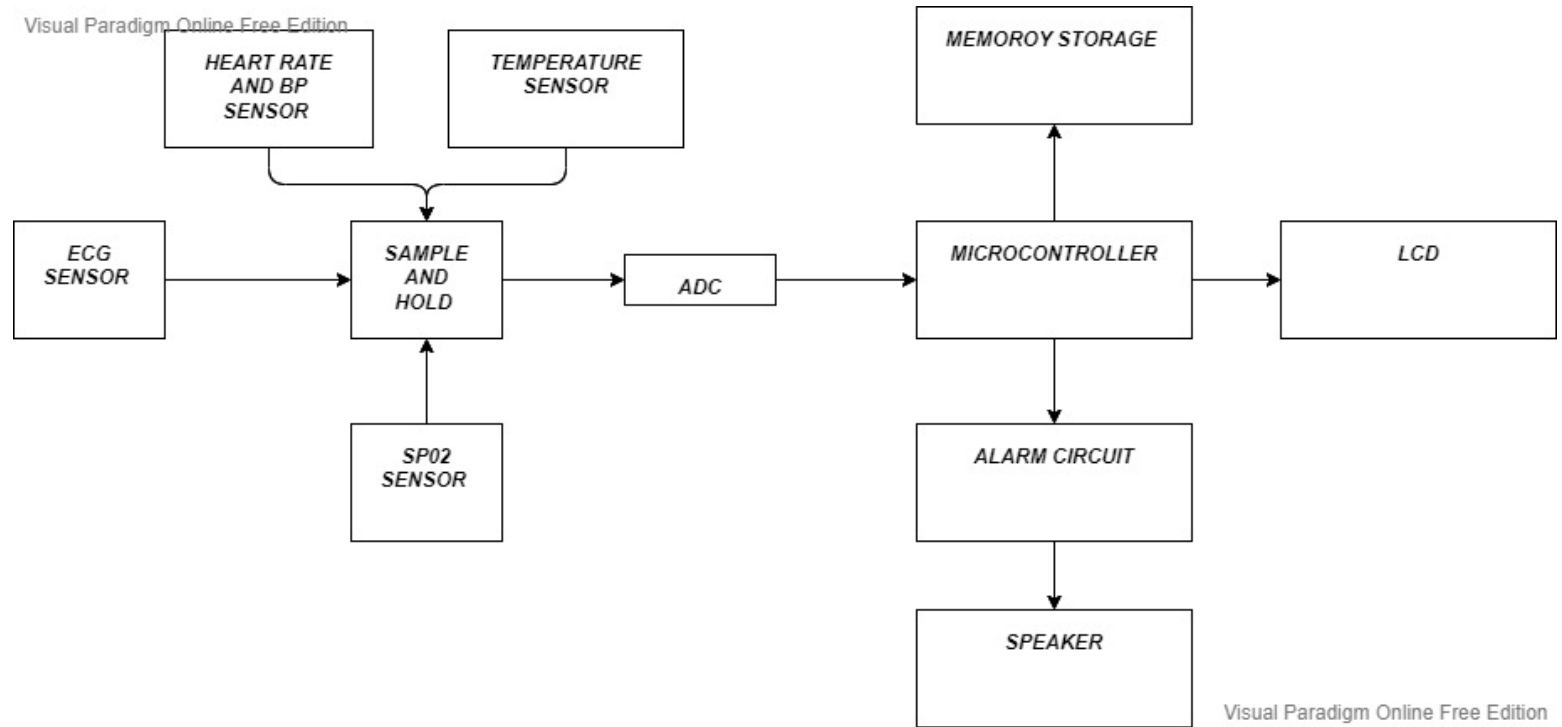# ICU PATIENT MONITOR

Kuye Doluwamu Taiwo

Problem

- Doctors cannot constantly be present in the intensive care unit, nor can they visit and monitor every patient at the same time; as a result, while attending to one patient, another may experience an emergency. Patients may experience difficulties as a result of this, and clinicians could feel helpless in the situation. The patient monitoring device provides a solution to these issues by continuously displaying vitals and alerting the doctor if any anomalous readings are detected.
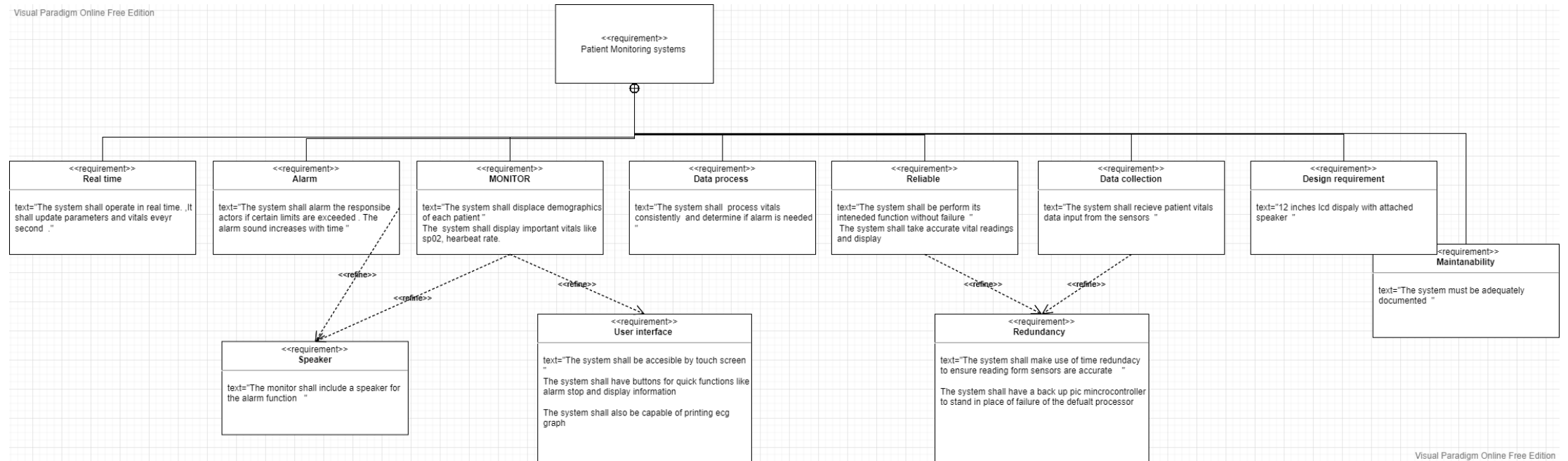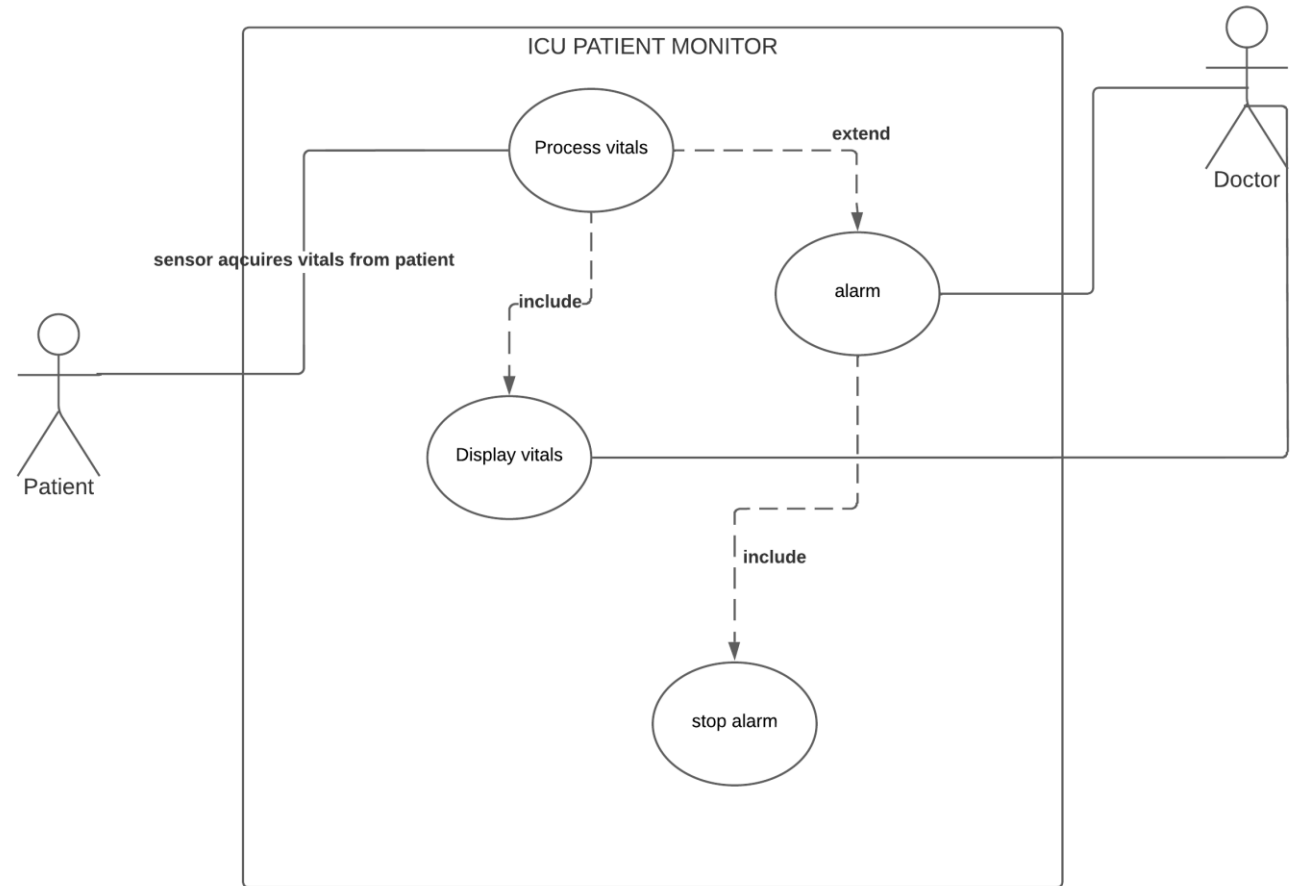
Diagram of the system elements
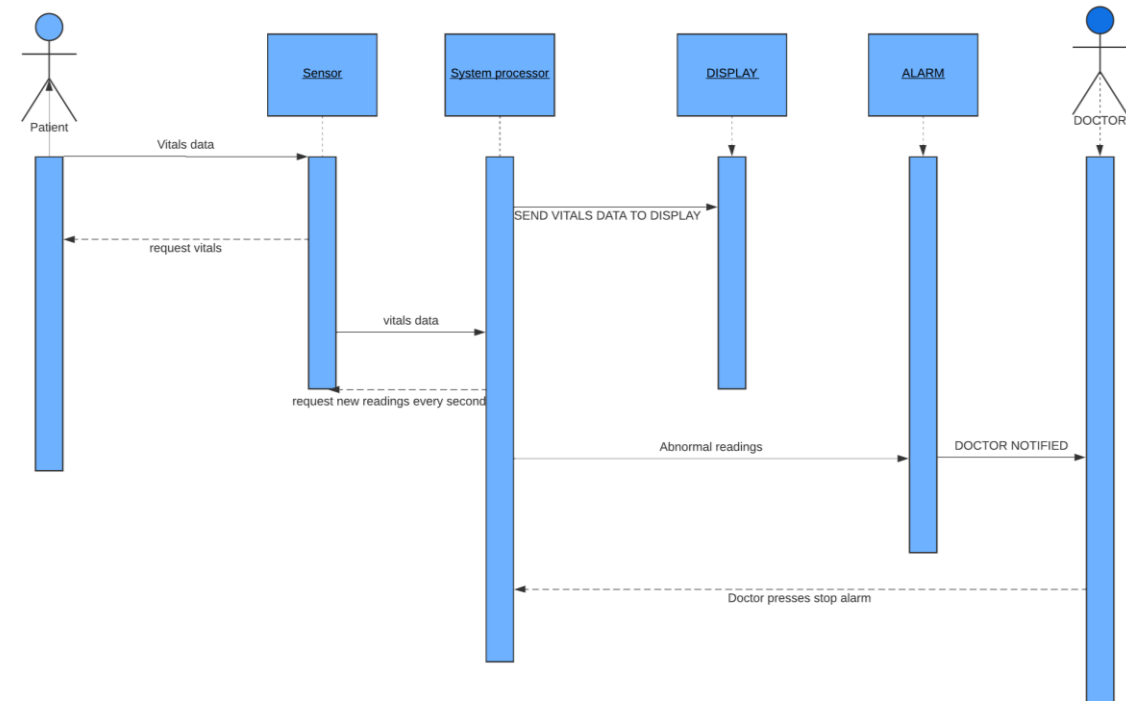
System block diagram

Requirements

<<requirement>>
Patient Monitoring systems

<<requirement>>
Real time

text="The system shall operate in real time. ,It shall update parameters and vitals eveyr second ."

<<requirement>>
Alarm

text="The system shall alarm the responsibe actors if certain limits are exceeded . The alarm sound increases with time "

<<requirement>>
MONITOR

text="The system shall displace demographics of each patient "
The system shall display important vitals like sp02, hearbeat rate.

<<requirement>>
Data process

text="The system shall process vitals consistently and determine if alarm is needed "

<<requirement>>
Reliable

text="The system shall be perform its inteneded function without failure "
The system shall take accurate vital readings and display

<<requirement>>
Data collection

text="The system shall recieve patient vitals data input from the sensors "

<<requirement>>
Design requirement

text="12 inches lcd dispaly with attached speaker "

<<requirement>>
Maintanability

text="The system must be adequately documented "

<<refine>>

<<refine>>

<<refine>>

<<refine>>

<<refine>>

<<requirement>>
Speaker

text="The monitor shall include a speaker for the alarm function "

<<requirement>>
User interface

text="The system shall be accesible by touch screen "

The system shall have buttons for quick functions like alarm stop and display information

The system shall also be capable of printing ecg graph

<<requirement>>
Redundancy

text="The system shall make use of time redundacy to ensure reading form sensors are accurate "

The system shall have a back up pic mincrocontroller to stand in place of failure of the defualt processor

Use case

ICU PATIENT MONITOR

- Patient
- sensor aqcuires vitals from patient
- Process vitals
- extend
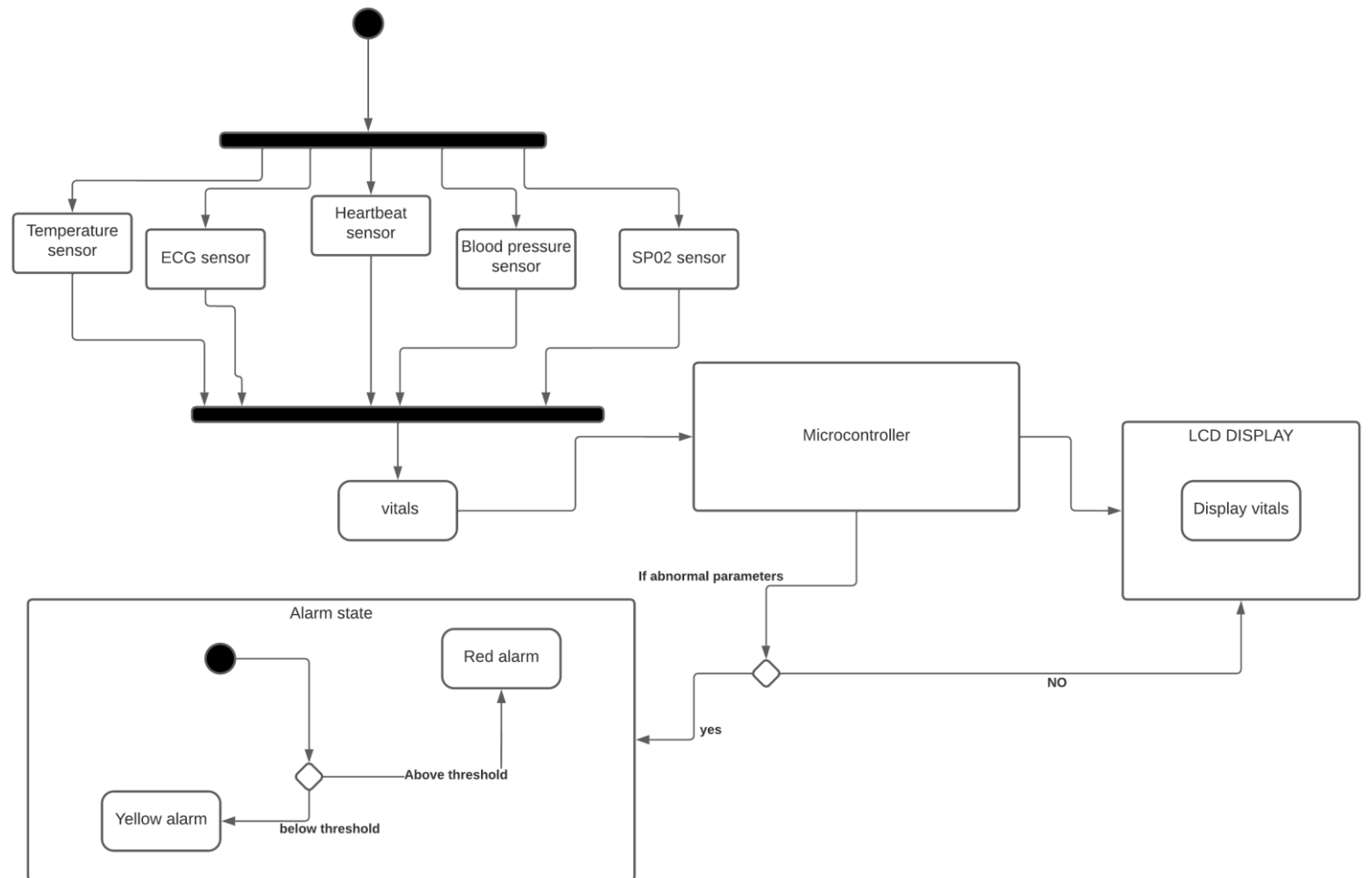- alarm
- include
- Display vitals
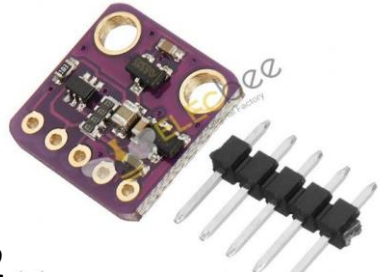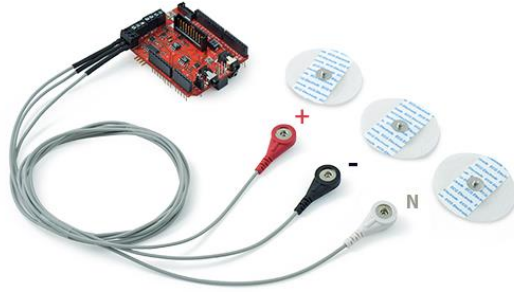- include
- stop alarm
- Doctor

SEQUENCE DIAGRAM

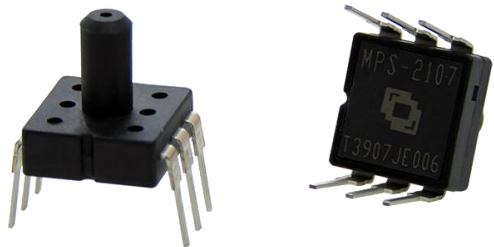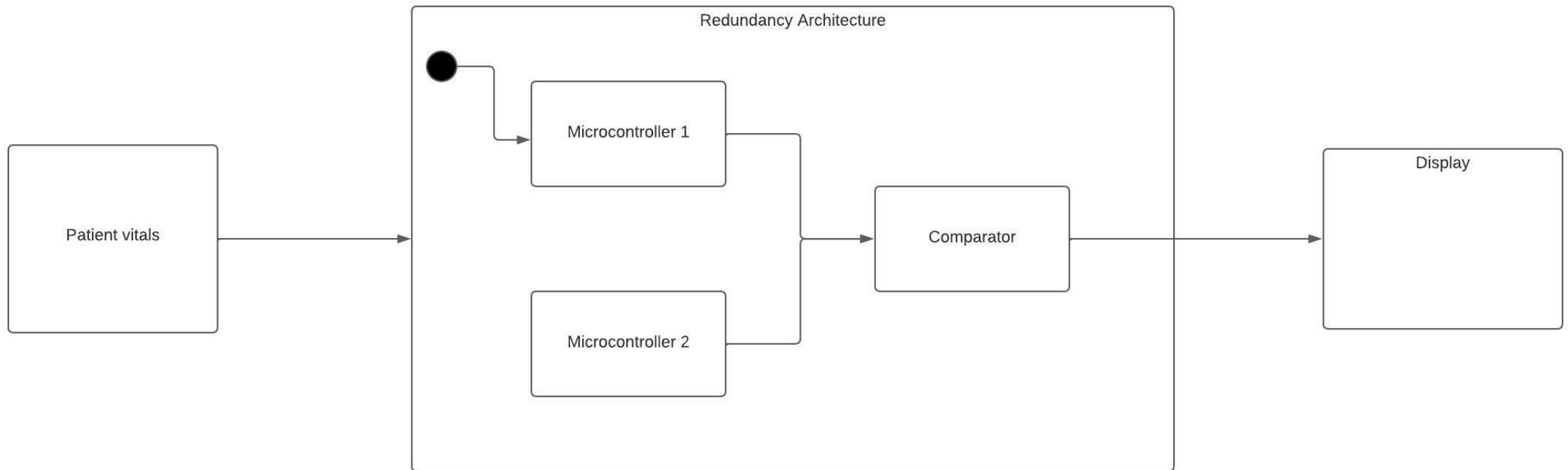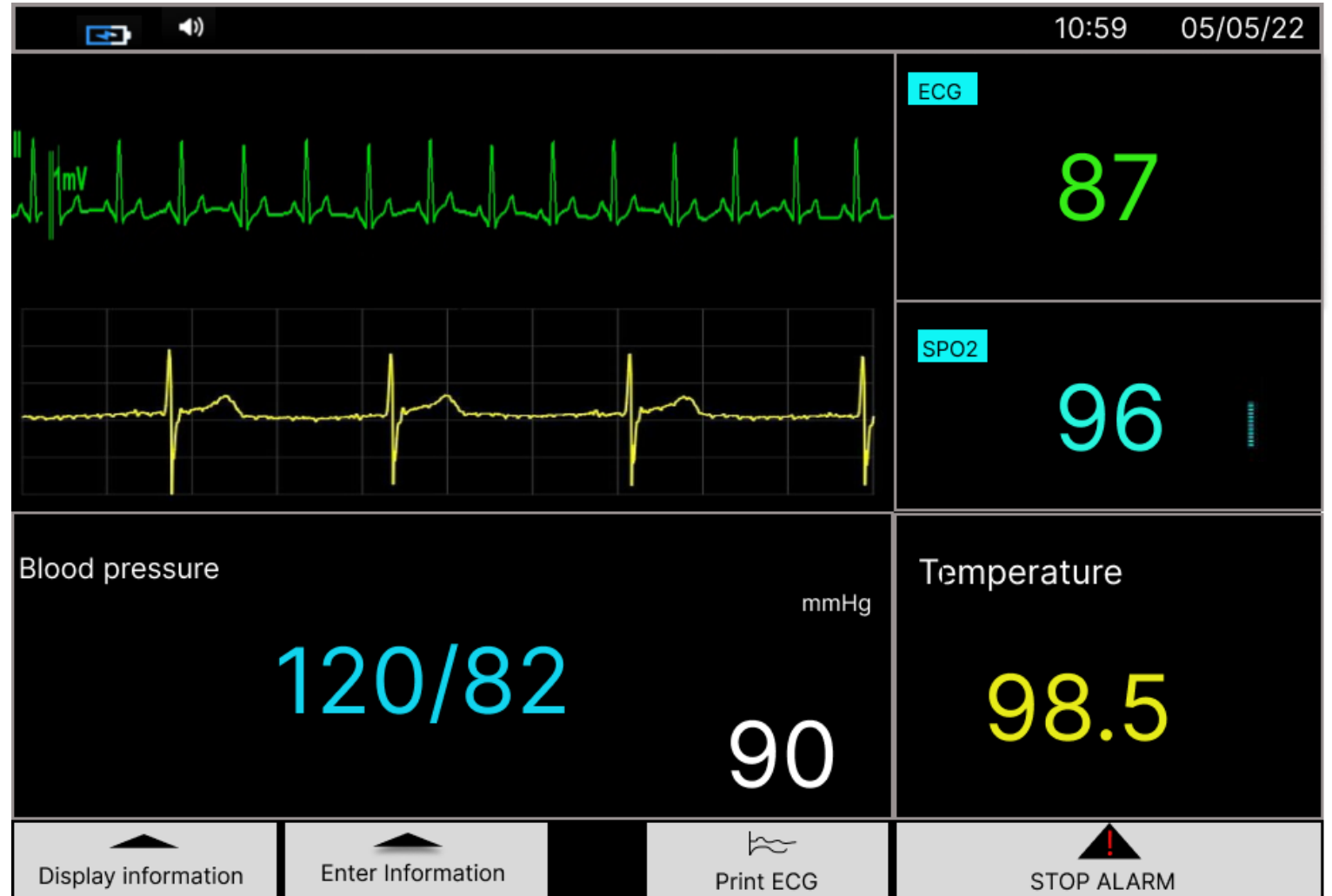# ACTIVITY DIAGRAM

MAX30102

ECG SENSOR
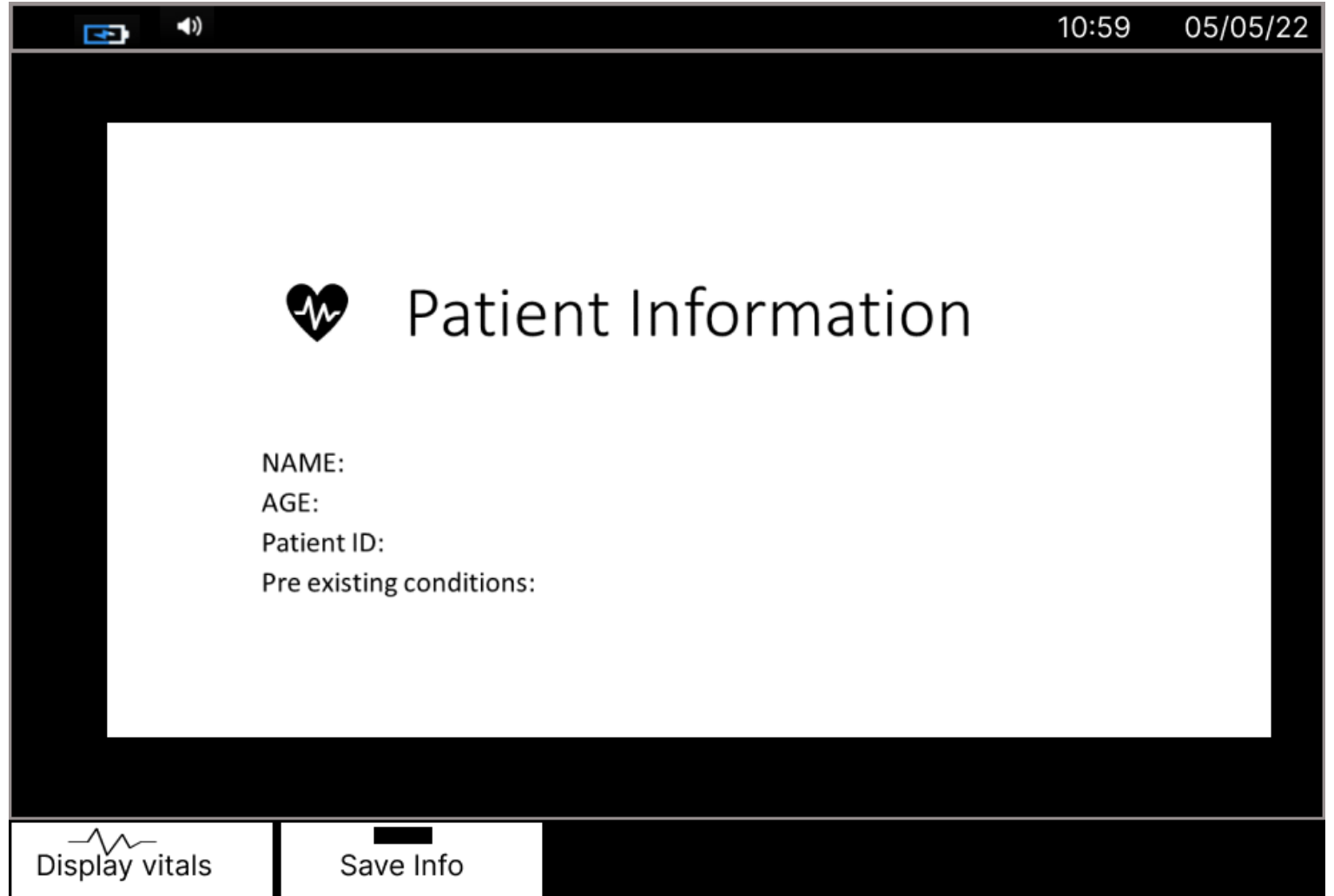

PIC16F877A

LM35

MPS2107

Hardware specification

Critical part

User interface (default screen)
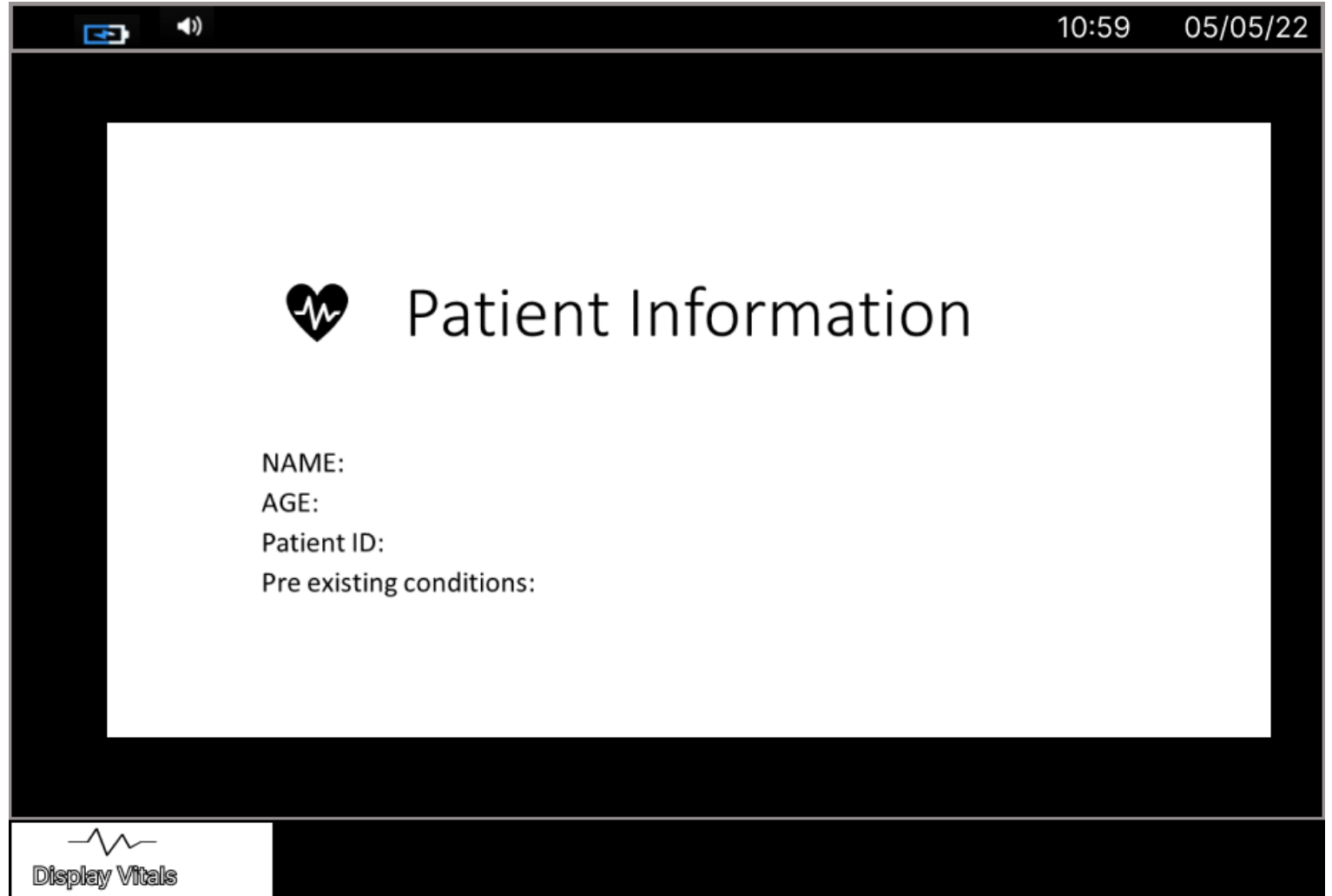
User interface (enter info screen)

User interface (display info screen)
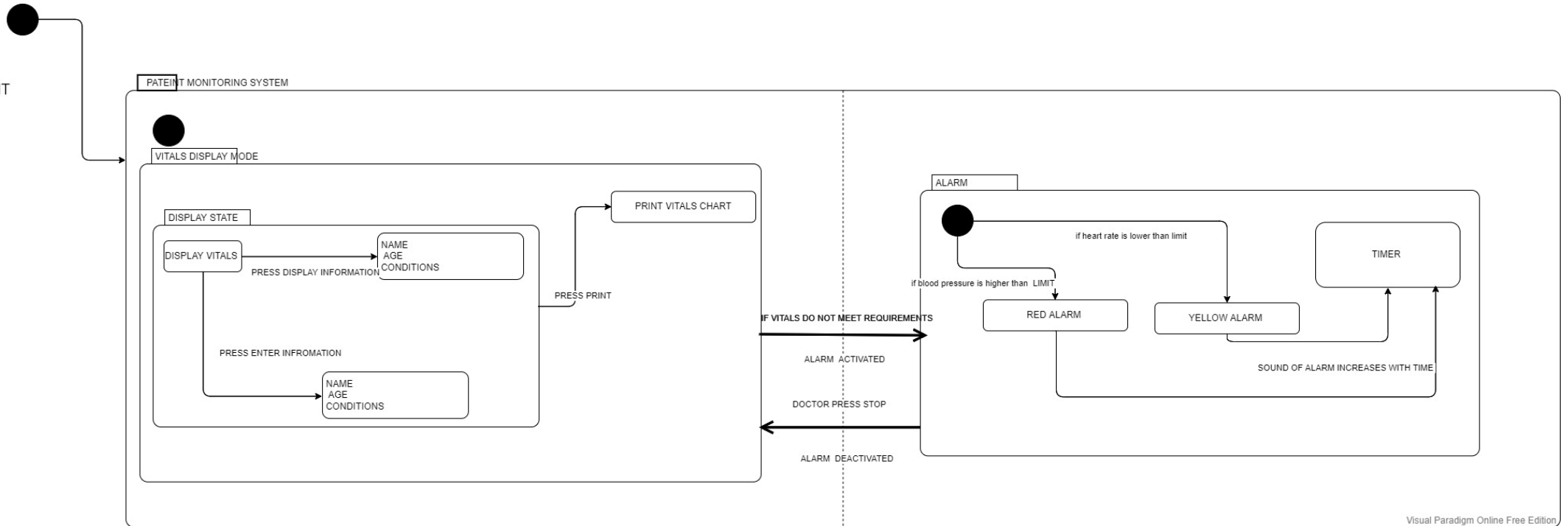
User interaction

Conclusion

- By using the system, the healthcare professionals can monitor, and quickly diagnose ICU patients all the time.