Model::Diagrams::Kontextdiagram

speaker

Network Display

Patient

+gives out sound alert

+Displays data from Monitor

+get connected

+develops

Monitor

+connects Sensor and software

Spo2 Sensor

Developer

+uses

+evaluates

+displays data

User

Prof. Dr. M. Munz

Model::Diagrams::Monitor_component

Monitor
(from Monitor Parts)

GUI
(from Monitor)

Surveillance
(from Monitor)

Patient Data
(from Monitor)

Alert
(from Monitor)

Sensor Control
(from Monitor)

«abstract»
SpO2Sensor
(from Monitor)

ISpO2Observer

Model::Diagrams::GUI_component

GUI
(from Monitor)

PatientData_init
(from GUI)

+displays

Display
(from GUI)

+displays

Patient Data
(from Monitor)

LimitSPO2
(from GUI)

LimitHR_upper
(from GUI)

LimitHR_lower
(from GUI)

ResetLimits
(from GUI)

SetLimitsStartup
(from GUI)

+startet

GUI

-SensorControl sensor
-Surveillance survey
-Alert alert
-Display display

+close(): void
+systemclose(): void
+updatelimit(lower_hr: String, upper_hr: String, spo2_val: String): void
+updatepulse_lower(lower_hr: String): void
+updatepulse_upper(upper_hr: String): void
+updatespo2_limit(spo2_limit: String): void
+updatepatient(name: String, surname: String, sex: String, age: String): void
+updatepulse(currenthr: int): void
+updatespo2(currentspo2: int): void
+check_init(upper_hr: String, lower_hr: String, spo2: String): boolean
+checklowhr(low_value: String): void
+checkuphr(up_value: String): void
+checkspo2(spo2_value: String): void
+checkname(name: String): boolean
+alarmhr(): void
+alarmspo2(): void

Surveillance
(from Monitor)

Alert
(from Monitor)

Sensor Control

-currenthr: int
-currentspo2: int
-isrunning: boolean

+updatesensorvalueshr(hr: int): void
+updatesensorvaluesspo2(spo2: int): void

Patient Data

+surname
+firstname
+sex
+age

+changepatientpatient()
+deletepatient()
+addpatient()

Model::Diagrams::Surveillance_class

```
         ┌──┐ ┌─────────────────────┐
         ├──┤ │        GUI          │
         ├──┤ │   (from Monitor)    │
         └──┘ └─────────────────────┘
              /                    \
            /                        \
          /                            \
    +call/                              \+call
        /                                \
       ↓                                  ↓
```

HRsurveillance
(from Surveillance)

-lowerhr_int: int
-upperhr_int: int
-sound: SoundAlert
-network: NetworkAlert
-text: DisplayAlert
-alarmstate: boolean

+updatelowerhr(lowerhr: String): void
+updateupperhr(upperhr: String): void
+alertbreak(): void
+resetdefault(lowerhr: String, upperhr: String): void
+alerthr(): boolean

SPO2surveillance
(from Surveillance)

-spo2_int: int
-warn: Alert
+alarmstate: boolean
-sound: SoundAlert
-network: NetworkAlert
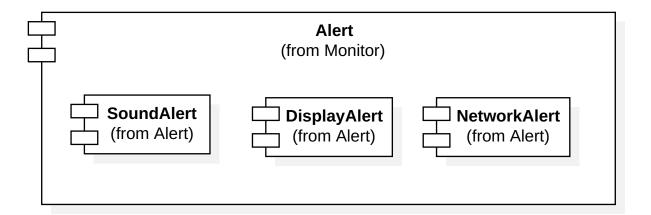-text: DisplayAlert

+updatespo2(spo2_val: String): void
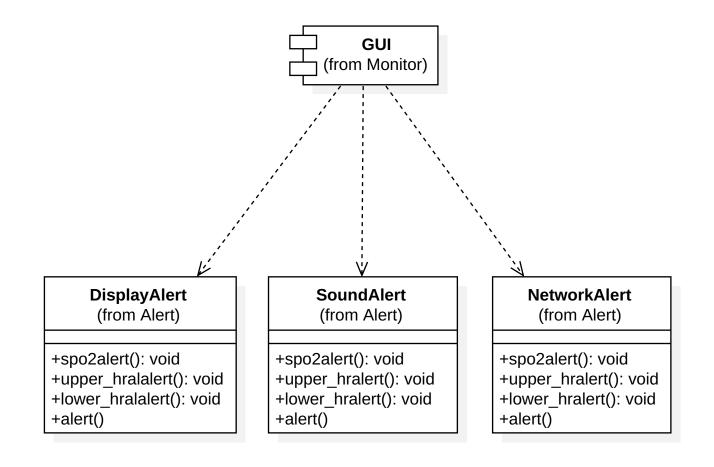+alertbereak(): void
+resetdefault(spo2: String): void
+alertspo2(): boolean

Surveillance
(from Monitor)

HRsurveillance
(from Surveillance)

SPO2Surveillance
(from Surveillance)

Alert
(from Monitor)

SoundAlert
(from Alert)

DisplayAlert
(from Alert)

NetworkAlert
(from Alert)

Model::Diagrams::Alert_class

```
           ┌──────────────────┐
           │      GUI         │
         ┌─┤                  │
         └─┤  (from Monitor)  │
           └──────────────────┘
```

GUI
(from Monitor)

```
┌─────────────────────┐  ┌─────────────────────┐  ┌─────────────────────┐
│    DisplayAlert      │  │     SoundAlert       │  │    NetworkAlert      │
│    (from Alert)      │  │    (from Alert)      │  │    (from Alert)      │
├─────────────────────┤  ├─────────────────────┤  ├─────────────────────┤
│+spo2alert(): void   │  │+spo2alert(): void   │  │+spo2alert(): void   │
│+upper_hralalert(): void│ │+upper_hralert(): void│ │+upper_hralert(): void│
│+lower_hralalert(): void│ │+lower_hralert(): void│ │+lower_hralert(): void│
│+alert()             │  │+alert()             │  │+alert()             │
└─────────────────────┘  └─────────────────────┘  └─────────────────────┘
```

DisplayAlert
(from Alert)

+spo2alert(): void
+upper_hralalert(): void
+lower_hralalert(): void
+alert()

SoundAlert
(from Alert)

+spo2alert(): void
+upper_hralert(): void
+lower_hralert(): void
+alert()

NetworkAlert
(from Alert)

+spo2alert(): void
+upper_hralert(): void
+lower_hralert(): void
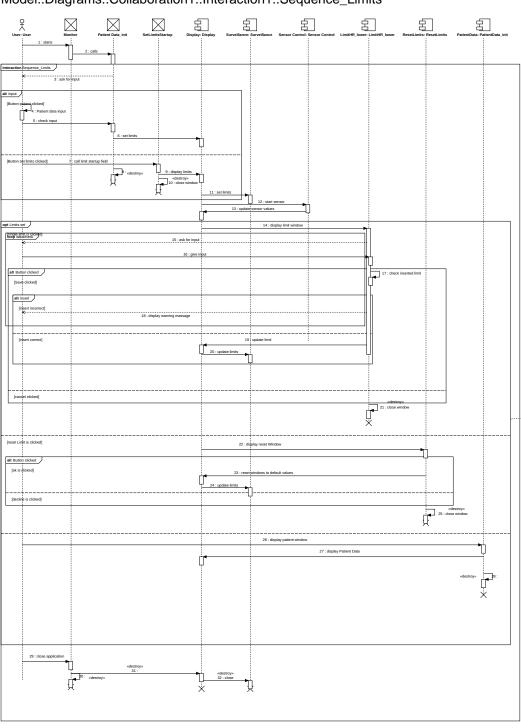+alert()

Model::Diagrams::Collaboration1::Interaction1::Sequence_Limits

This includes 4 optional functions:
- Set new upper HR limit
- Set new lower HR limit
- Set new SpO2 Limit
- Set Patient Data

All this methods display a field with with two buttons (save and decline) by clicking the decline Button, nothing happens.

All displays have field(s) to enter value. If a value was inserted and save was clicked, a check up is done if the inserted value is a correct input. If a correct value was inserted, Value gets displayed in the Display Window. Additional for set limit the value in Surveillance is set as Limit. Otherwise an error Massage is Displayed and asks for an correct input. Same actions are done if OK is clicked in the Reset Window.

Model::Diagrams::Collaboration2::Interaction1::Sequence_Alarm

interaction Sequence_Alarm

| Monitor | Surveillance | DisplayAlert | SoundAlert | NetworkAlert | Network Display |

1 : checklimits

«create»
2 : start

Sensor Control

loop while start

alt alert

[alert and no break set]

3 : alert

4 : display alarm

5 : alert

6 : give out sound alert

7 : alert

8 : alert on network Monitor

9 : end method

[alert and break set]

10 : display symbol for alert

11 : network alert

12 : text alert in network Monitor

13 : end method

[no alert]

14 : end method

«destroy»
15 : end Progra