**Feedback system**

* Implementation of the feedback should be as tactile as possible.

**Functional requirements:**

Feedback on airway management

* Head pulled too far
* Head pulled not far enough

Feedback on compression (perfect, too few, too much)

* Harder/softer
* Faster/slower (a little/ a lot)
* More/less compressions
* Adjust finger positioning
* More decompression after compression

Feedback on ventilation

* Airflow
* Volume
* More/less ventilations
* Longer/shorter ventilations
* Longer/short interval between ventilations

Configuration:

* Select which kind of feedback is given during the session
* Select between different modes. Learning CPR mode and CPR examination mode.
* Weight and Length of baby should be configurable.
* Compression feedback
* Ventilation feedback
* Handling feedback

Won’t do:

* Data storage/analysis goes via web server and not via this system
* Real baby simulation like breathing or crying sounds.

|  |  |  |
| --- | --- | --- |
| FURPS | Requirement | MoSCoW |
| Functionality | The system can give feedback on compressions | Must have |
|  | The system can give feedback on ventilations | Must have |
|  | The system can give feedback on airway management | Must have |
|  | The system can communicate with USB | Should have |
|  | The system can communicate with Bluetooth | Must have |
|  | The system can communicate with Wi-Fi | Could have |
|  | The given feedback should be validated in combination with the tactile actions of the baby patient simulator | Must have |
| Usability | The user can select between the three feedback types | Must have |
|  | The user can select between the different feedback voices | Must have |
|  | The user can scale the amount of feedback given | Should have |
|  | Speech feedback is phrased positively | Must have |
|  | It is clear when the system is booting up | Should have |
| Reliability | The system does not disconnect | Must have |
|  | Receive buffer is large enough to handle sudden larger amounts of data, in case of stored data at connection failure. | Should have |
|  | The feedback should adhere closely to the guidelines of CPR | Must have |
|  | When using a Raspberry Pi for non-wireless feedback, the starting up and starting down process should be reliable. | Must have |
| Performance | The feedback must be given in real-time. This “real-time” shall comply with Gert van Lagen’s definition of real-time. | Must have |
|  | A delay can be applied to the actual giving of the feedback. | Should have |
|  | The system is stress tested with a lot of messages. | Should have |
| Supportability | Wireless technology should be changeable | Should have |
|  |  |  |
|  |  |  |

**Power management system**

**Functional requirements**

*Could haves:*

*Should haves:*  
12V is suggested.

The system is usable while the batteries are being charged

*Must haves:*

Should be reliable  
At least 8 hours of battery life.  
Thermal protection  
Supply 5V and 3.3V.  
Communication state of charge

*Won’t haves:*Wireless charging.

**FURPS**

|  |  |  |
| --- | --- | --- |
| Characteristics | Description | MoSCoW |
| Functionality | * Rechargeable Battery powered system * The system is usable while the batteries are being charged * Smooth start up and shut down |  |
| Usability | * Includes power button to turn ON or OFF the system * User-friendly plug/power connection |  |
| Reliability | * Thermal Protection * Over/under current protection * Wrong polarity protection (should have) * Peak voltage protection |  |
| Performance | * 8 hours battery life (two sessions?) * Fast battery charging (could have) |  |
| Supportability | Can use external charging (Micro-b or USB-C?)  Changeable battery(?) |  |