**Problem definition:**

A baby patient simulator for basic life support that can improve automated real-time feedback for nurses at HAN Nursing school, Utrecht University and Radboud University Children's hospitals. Normal manikins aren't realistic and don't give feedback to the person giving CPR. The more realistic simulators are very expensive and not useful for large-scale education due to the high price.

**The ventilation measuring system:**

The ventilation system is currently not very accurate, difficult to clean and rather big. This creates a few problems:

1. It’s dangerous if you cannot measure the amount of air going in/out. The students could get wrong feedback during training and therefore they would be taught the wrong techniques.

2. The system is difficult to clean which may result in the unwanted growth of bacteria or fungi.

3. The system is quite big. This is of course unwanted; a more compact system is a better system.

**The compression measuring system:**

1. The compression system is not quite accurate. Again, the students could get wrong feedback during their training and therefore they would be taught the wrong techniques. This can lead to dangerous situations.

2. The system is not measuring or giving linear results, this again, leads to unreliable results.

**Lungs and Airway**

1. The lungs and airway are not realistic. The nose is not completely open, and we want to make something that you can connect easy to the lungs, because in our opinion the airway is too long.

2. The materials that are used are not reusable.

**Body**

1. In the body are pins and other pieces that get in the way and take up a lot of space.

**Ribs**

1. The ribs are not realistic at this moment.

2. They are not giving any feedback.

**Limitations current prototype:**

* Thorax doesn’t feel life-like (when compressing)
* Lungs are for single use (So re-useable lungs that you can clean, or easily replace)
* Skin isn’t life-like
* Ventilation measurements (Sensor has a moisture problem)
* Airway isn’t designed for new components (ribs, sensors e.g.)
* Airway doesn’t block when preforming the Head-tilt technique wrong
* Real-time feedback (Realistic feedback from an infant)