TARS

A system that supports cardiac patients during their rehabilitation.

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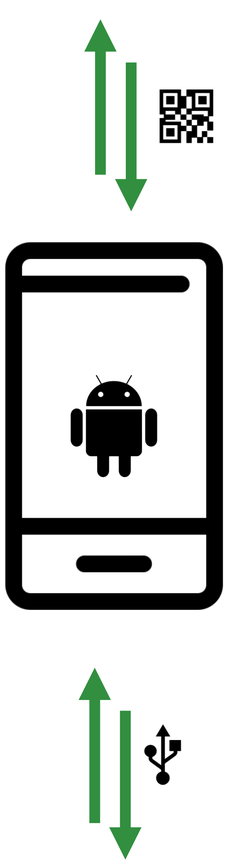
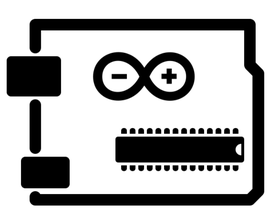
Doctors tool

- JavaScript based website
- **Setup tool** for the application
- **View the results** of measurements
- Communication through QR codes



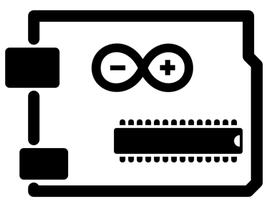
Application

- Contains **list with measurements** that have to be done
- Gives **feedback** on the results of a measurement
- Dynamically creates a new measurement according to the results
- Stores the results of measurements
- Dynamic notification system
- Exports results
- List with ICE telephone numbers



Arduino 1

- Acts as a **bridge** between the Android smartphone and Arduino 2
- Controls the **feedback system** with the LEDs and screens for the eyes of TARS
- Communicates with the smartphone through serial (USB OTG connection)



Arduino 2

- Contains the Cooking Hacks **eHealth module**
- **Takes the measurements** and returns the results
- Communicates with Arduino 1 through a Software Serial connection

TARS - Therapeutic Assisting Robotic System – is a system that helps patients with their rehabilitation after they had a heart surgery or failure. Cardiac patients need to maintain a healthy lifestyle and often have to measure their medical parameters. Doing measurements is a boring and difficult task, so over time patients will ignore them. It's TARS responsibility to help the patient with their measurements and to provide feedback about the results. TARS will also try to keep the patient motivated during the rehabilitation.

How does TARS work?

1. The doctor **initializes the system** and the patient takes it with him home.
2. At a specific time, the **application will notify** that a new measurement has to be done.
3. The patient opens the application and goes through all the **steps of the measurement**. After the measurement, results and interpretation will be visible.
4. The system automatically creates a **new deadline for the next measurement**, depending on the results of the previous measurement.

How can TARS support patients?

- Providing **measurement notifications** at appropriate time
- **Supporting** in taking the correct measurement
- **Giving feedback** on results of measurements
- **Entertaining** by changing its eyes
- Storing and exporting results of measurements
- Fully customizable by the doctor

Supported measurements:

Heart Rhythm

- Pulse oximeter
- Average of 60 to 100 bpm

Oxygen level

- Pulse oximeter
- Average of 95 to 99 %

Blood pressure

- Blood pressure gauge
- Average of 120 mmHg for systolic and 80 mmHg for diastolic pressure

Daily activity

- Step counter
- Measurement executed in background
- Average of 10.000 steps a day

Daily reminder

- Did you sleep well?
- Have you taken your medication?

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