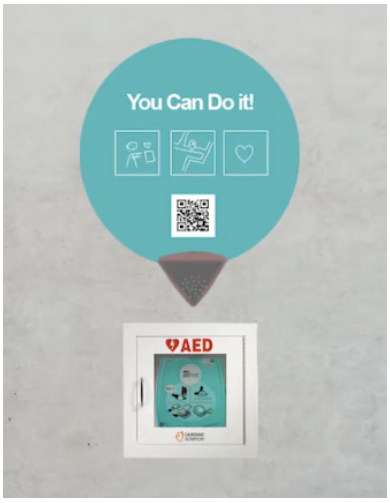


“You Can Do It” Status Report for Laerdal Foundation

September 2020

Background. “You Can DoIt - taking AEDs” (YCDI) project was considered of particular interest and was granted 269 000 NOK in December 2019. YCDI project is led by an entrepreneurial group consisting of specialists in engineering, product design and business, and supported by Copenhagen EMS (CEMS).

Short description. “You Can Do It” is a dispatcher activated IoT device to alert and mobilize the people passing by the nearest AEDs to the OHCA patient before EMS arrival. YCDI devices reside next to a public AEDs, aiming to attract and engage people using lights and contextual sounds and also help them navigate to the OHCA site via their smartphones.

It allows alerting the optimal amount of AEDs in the closest proximity to the OHCA event for notifying and mobilizing multiple good samaritans nearby to increase the chances of survival. YCDI aims to increase OHCA (out of hospital cardiac arrest) victims survival rate by engaging MORE bystanders to use AED in MORE OHCA incidents FASTER

Declared deliverables (in the application)

1. Project Kick-off (Objectives and KPIs)
2. Inspiration Research In-depth interviews with Heart Runners, Subject matter experts, AED developers. Guiding principles for a Prototype.
3. Prototype Ideation & Technical Brief 2-3 prototype ideas, Prototype specification, Educational campaign.

Actual deliverables

1. **Kick-off meeting.** During the kick-off meeting, YCDI and CEMS teams identified project deliverables and key performance indicators on each stage of the user experience: OHCA case, YCDI activation, Attention, Engagement, Delivery, Post OHCA. We focused our attention on layperson and dispatcher experience. We decided to ignore the victim, OCHA witness actors as their experience will not influence the design.

2. **Interviews.** The research and inspiration part approach has been modified due to COVID situation. We focused our interviews on investigating business potential, the road to market and observations of AEDs placements. We have done interviews with AED distributors, potential customers. Results:

    a. Interviews confirmed our assumption that a separate device from the AED housing unit would be the most logical solution from design and market potential.

    b. Distributors and end customers confirmed interest given the support of CEMS and scientific proof of the device effectiveness.

3. **Design Process**

    After the interviews and initial studies, we have carried out several ideation workshops using various design thinking methodologies.

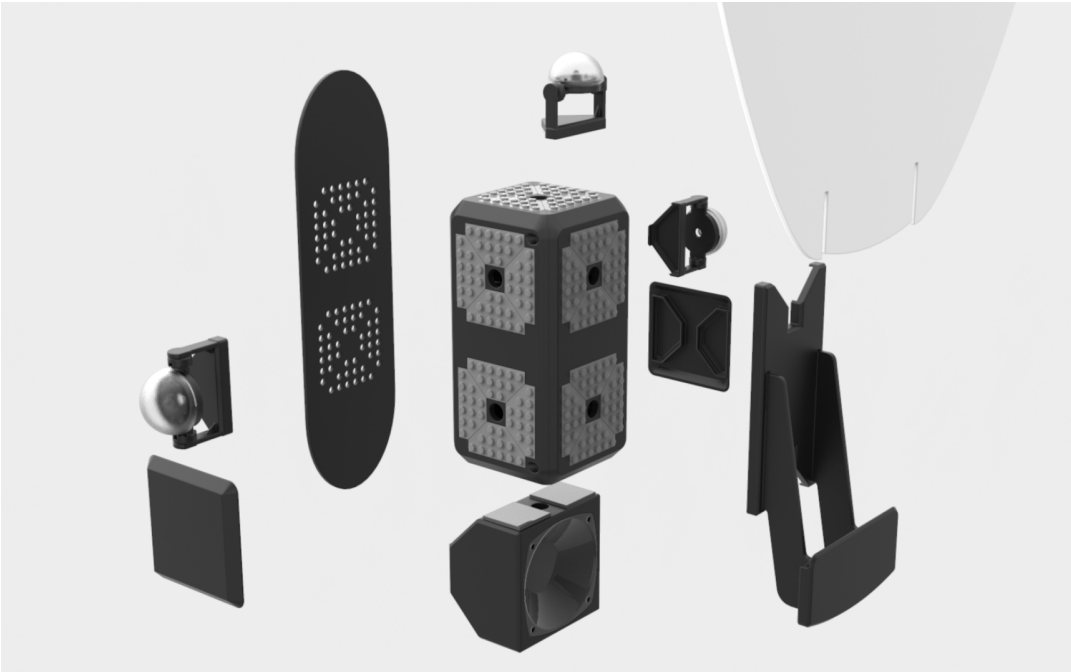
    

    We quickly figured out that the prototype had to be modular, flexible and easily customizable in order to adapt the continuous behavioural insights during the upcoming simulation testings. We are going lean.

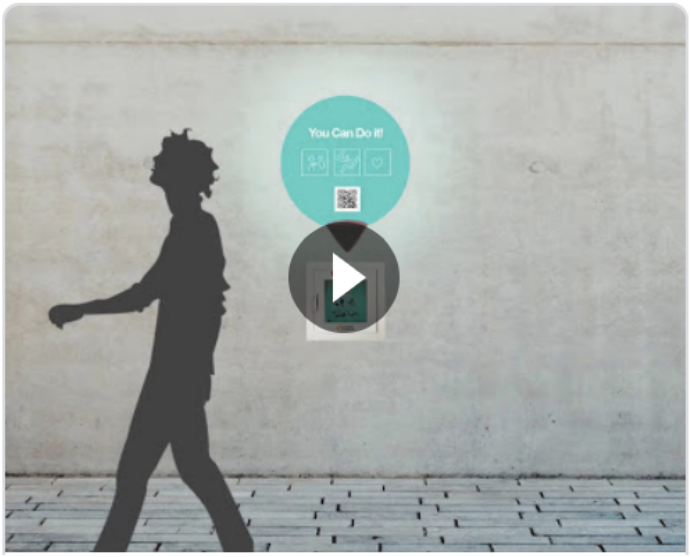
    We divided the user journey into three main interactions; attraction, engagement and navigation. User experience will be refined through behavioural studies measuring key metrics for each macro and micro-interactions.

4. **Prototype design.** The team decided to have an IoT base with the core components, and individual customizable interaction components for the lean testing process. The minimum viable prototype consists of an IoT base, three RGB LEDs module, a speaker module, a communication board) All of the modules are using the same connection

method and can be attached on any surface of the base in any given orientation. This approach allows testing endless possible configurations in a cost and time-effective way. Any extra module could be added to the configuration at ease such as light, sound, sensors, etc.



Here how we imagine user experience and YCDI device integration in the city environment. [Video link]

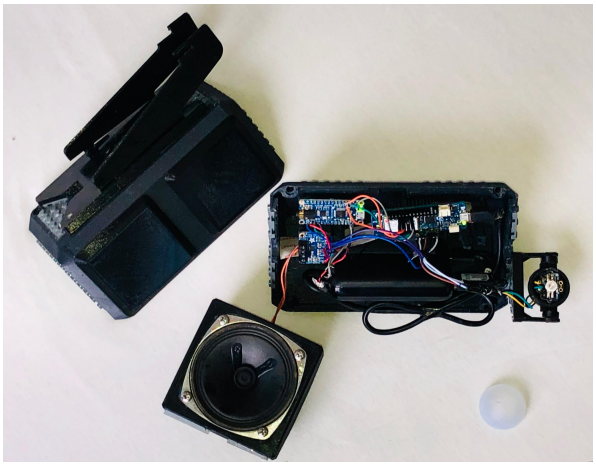


5. **Prototype development.** Although it wasn't part of the team commitment we stretched the budget and have built the first prototype for low fidelity tests.

Design. We developed the first prototype base and sound, light, info-board, and wall attachment modules. All modules are 3d printed except the communication board which is made of LED-Acrylic material to glow with the light module and make the alert and visual communication material visible to the user.

Base module: 10 module attachment slots
Light module: Adjustable angle
Speaker module: Adjustable angle
Communication module: Slide-in board cartridge

a. **Technology.** The prototype is based on an arduino microcontroller and is connected to the internet using LTE/NB-IoT (which is a subset of "regular" cellular networks) and as such, there is in general extensive coverage. We include a 10Ah battery, the equivalent capacity of 5-6 smartphones, that should be able to power the prototype for 7-14 days on a charge.

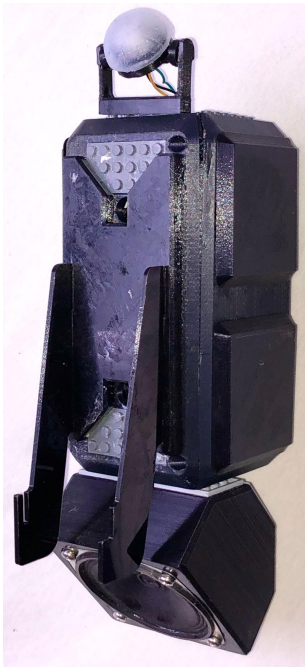


b. **Server.** For managing client devices and communicating with bywalkers/EMS we are running a cloud-based server that also serves our bywalker front-end interface seen on the right.

6. **Patent & Invention description.** It was important to identify if YCDI invention is not in conflict with existing patents. We have identified potential conflicts and ordered IP evaluation. The initial evaluation didn't identify any IP conflicts.

   See also:

   Appendix 1. *Invention Description*
   Appendix 2. *IP attorney conclusion*



7. **Next steps.** YCDI and CEMS teams have identified the next steps for further project development:

   a. Low fidelity tests for optimal design elements combination

   b. Machine - human interaction research to define the message and ensure engagement

   c. Simulation test design and implementation in the natural environment, ethical committee.

   d. Tech and behavioural implementation design in the existing OCHA emergency systems

Conclusion. YCDI team has implemented the project according to the project plan and produced the physical prototype on the top of the committed objectives. YCDI has a clear vision for the project development and has the support of the Copenhagen EMS team in progressing further.