# Project: Badge

Goal:

To design and produce a technological alternative to regular paper nametags. The badges would be reusable and reprogrammable.

We wanted to be able to program the product using Arduino software, so it would become the perfect playground for introducing microcontroller programming to beginners - specifically kids.

The product was to be designed with simplicity in mind, which is why we chose to use Wi-Fi for the communication between the product and the controller (Android phone or remote server).
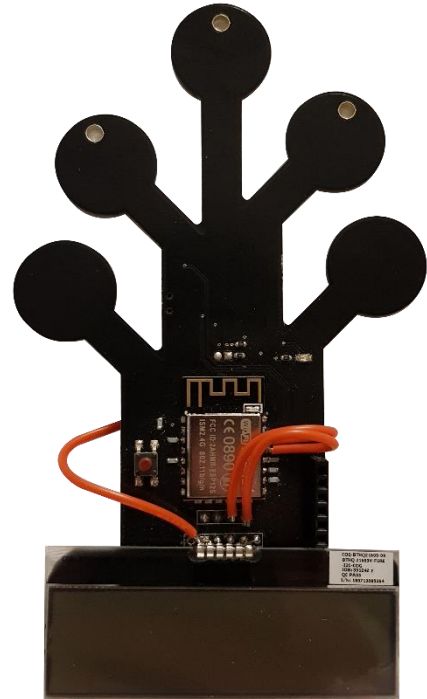
Work:

We used Trello platform and the Kanban management system to manage the whole project. The end goal was divided into tasks, so everyone had something to do.

We started by deciding upon the overall design and functionality of the project. For the design we chose our school logo.

Next our designer sketched the basic design and layout of the product on paper and decided upon the dimensions. As soon as we all agreed on the design we started with a CAD (*Computer Assisted Design*) sketch where we defined the positioning of different components and the end dimensions.

As soon as we knew how the product should look and work, we created the electronic schematic where the primary features were implemented – charging circuitry, programming interface, LCD display, communication bus, Wi-Fi enabled microcontroller etc. Soon we had the PCB (*Printed Circuit Board*) for the prototype designed and ordered.

When we assembled the prototype and got everything »working« we soon found out, we made a lot of mistakes. We compiled a list of problems we had and found a solution for each and every one of them.

Our electronics engineers got back to work, designing a new and improved product where most of the parts had to be changed at least a bit.

Problems and recommendations:

The main problem we ran into with the project was that our prototype had a lot of little bugs and glitches, because the project was done exclusively by us without teacher intervention. We compiled a list and one by one found a solution for everything and learned a lot in the process.

RECOMMENDATION: Whenever you fail, you shouldn't give up but rather learn from the mistakes you made and strive to improve your project. **There isn't success without failure.** Students should always be let to work independently and fail, because failure teaches you more than any book or lesson ever could (*learning by doing*).