

## Public summary

### Designing a User Interface for a solar home charging for an e-bike.

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This thesis was written for an assignment for the Living Smart Campus project called 'Solar-powered e-bikes', which aim was to design a User Interface for the solar home charging kit for e-bikes. To design this User Interface, the following question was posed: *"How can the data from the solar home charging kit be translated in a User Interface that is understandable for average users, which will result in a change in behaviour to be aware of sustainable cycling?"*. To answer this research question, the project was executed in various phases:

First of all, analyses were done. To understand the product, wherefore the User Interface is needed, an analysis was executed on the charging kit and the e-bike. Next the target group was identified, which are commuters with an higher level of education, who are either interested in saving money or feel guilty about their CO2 emission and global warming. After this, user research was done on usability. This resulted in eight different heuristics to design a good User Interface. A market analysis resulted in a list of possible functions of the User Interface. The last analysis, on aesthetics and graphic design, showed that the User Interface should contain natural colours, and be simple and modern.

After these analysis a user survey, with 32 respondents, was executed. This resulted in information about user needs in the User Interface. The respondents would like to have the following information in the UI for the charging kit: charge of the battery, charging time, connection of e-bike and errors. Surprisingly sustainability information was not of interest to the users according to the user study, but needed for the design of the UI. Therefore, the following functions were included in the UI: charge of the battery, charging time, operating range, overall distance, distance on travelled solar energy, a map and speed.

Within the ideation phase, function diagrams, sustainability ideas, sketches and symbols were designed. Finally two concepts for the design of the UI were designed, Concept Straight and Concept Angular. Concept Straight is more simple and has more information on one screen. For the sustainability it shows CO2 savings and trophies can be won. Concept Angular is still simple, but more graphical and shows only one sort of information on one screen. For the sustainability it shows the money savings, with which trees can be bought and put in a virtual garden. The concepts were both worked out in PowerPoint.

Both concepts were tested in a usability test. First it was investigated how fast a user could use a certain screen. Which resulted in the finding that concept Straight could be operated quicker. So the structure within this concept is better. After this, the functions were tested. This resulted in the finding that both concepts needed changes to be fully understandable. At last there were some overall questions about the User Interface, through which the user could show his opinion. For sustainability it was found that users would like to receive information about the money savings and CO2 savings, with getting trophies as a reward.

The final design of the UI that was realized in this bachelor assignment answers the research question shown above. However this research should continue. In further research, the design should be programmed by an App developer to create a real prototype. This prototype then can be tested for a longer period of time with users in a real situation of use of e-bikes and solar home charging kits.