Zero Energy Building for DTU Building Design
Bachelor

T. Berna\textsuperscript{1}, K.V. Jacobsen\textsuperscript{1}, K. Hillig\textsuperscript{1} and R.P. Haagensen\textsuperscript{1}

\textsuperscript{1}DTU Civil Engineering, Technical University of Denmark

Introduction
The new building for the new bachelor line of DTU Building Design is designed as a net zero energy building in the architectural context of the university. Besides energy consumption the project has a large focus on the Life Cycle Analysis of materials, indoor climate and total economy cost efficiency, while still aiming for high architectural standards in the experience of the facades, the area and internal flows and proportions.

The proposal can be seen as an opposition for the chosen new building 127 by Christensen og Co., which conceptual design has been made in the same period as the one for this project, but only compiling to the current building regulation. The project therefore shows the level of skills present at the department of Architectural Engineering and proposes a more ambitious strategy to the many new buildings needed at DTU in the coming years.

ReflectMe

M. Karahan, M. Olgun, and N. Marashi
DTU Digital Media Engineering, Technical University of Denmark

INTRODUCTION
In the recent years a paradigm shift has occurred within the tools available for living a self-aware life. Mobile sensing is no longer a concept practiced by scientists, and everyone with a smartphone can use mobile applications and sensors to track various aspects of their everyday life.

We have developed an application concept that goes beyond tracking numbers and displaying statistics. Our smartphone application will be capable of determining the user’s context of transportation and able to exemplify how the choice of transportation is having impact on the user’s health, economy, and how it is affecting the environment.

PROBLEM STATEMENT
We want to develop a mobile app, which uses mobile sensing as a tool to help, or even force the user to reflect on what impacts the choices for means of transportation is having on his or her life, and on the environment.

We want to analyze how the collected data can be integrated into everyday measure units, and visualized in order to create the most effective impact, and force the user to reflect and take actions.

In connection to this, we want to investigate how we can make the application aware of the transportation context, and how we can use the context awareness in creating an engaging user experience, both in the sense of immediate feedback, as well as long-term feedback.

USERS AND USAGE
The app is targeted towards users, who can chose between automotive and manual means of transportation, and who want to know the exact trade-offs by switching from one to another. The focus is primarily on automobiles, motored bikes and public transportation vs. bicycles and walk.

How It Works
Value is given to the user by providing measurements in common, understandable units, and more noticeably by exemplifying what the direct impacts of her decisions are. Examples such as: “It takes a tree 38 days to convert the CO2 you have emitted today into oxygen”, or “You have burned the same amount of calories as are in 3 BigMacs by cycling today”, upraise the user’s engagement level and provokes reflection and taking action.

Users will also be able to compare and compete with friends and family via social media integrated apps, which also creates awareness amongst the user’s network regarding the impacts our choices on how to transport ourselves has on our health, economy, and environment.