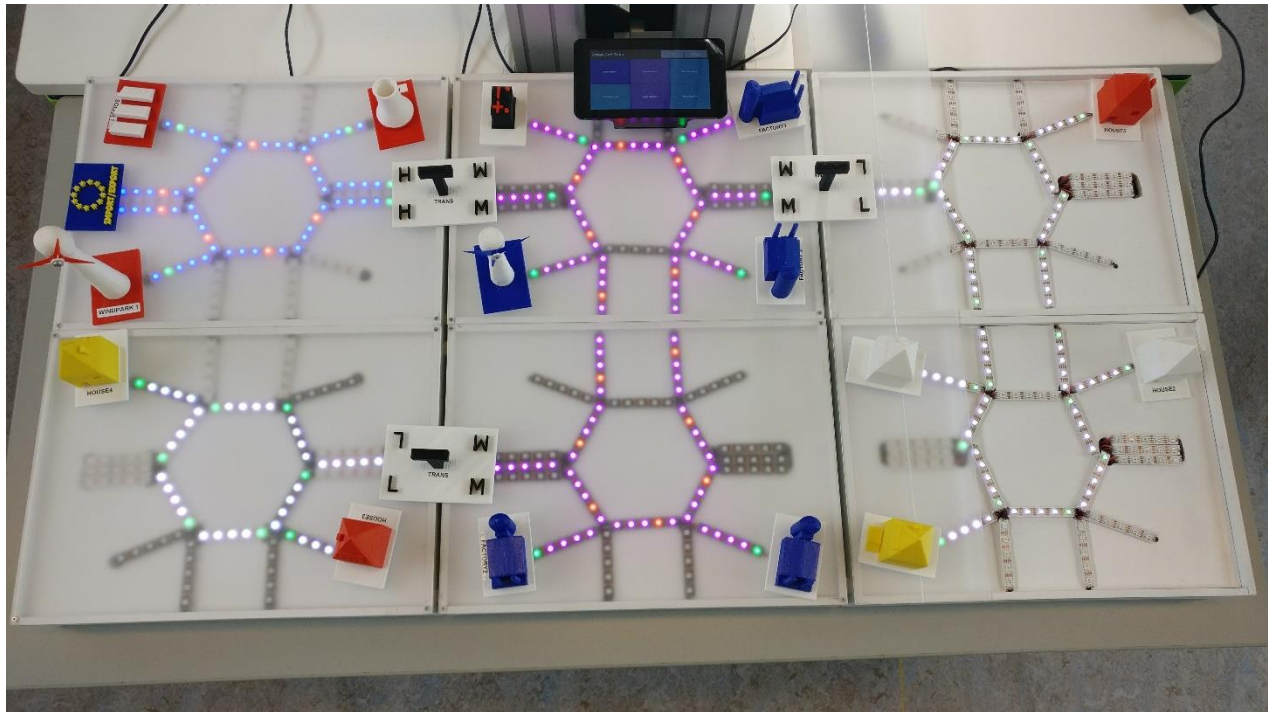# Implementation of Simulation Software for Smart Grid Table

A smart grid is an evolved grid system that manages electricity demand in a sustainable, reliable and economical manner. Designing and understanding this energy transition can be complicated. To demonstrate the behaviour of a small part of the grid, a smart grid simulation table is designed and built consisting of several 3D-printed miniature modules interconnected by different types of power lines (high, medium and low voltage) simulated by LED strips. The table is to serve as a simulation tool for providing a basic understanding on the functionality of the Smart grid concept and it is intended for students, teachers, government officials and other stakeholders involved in the energy transition. The ICA student group had made a nice concept of 6 table sections with a main controller and touchscreen interface for showing the basic ideas of energy transitions. It also had been adapted with the setup in engineering Lab.

ICA Smart Table Sections and Interface

Smart grid demo table (Engineer Lab)

Next Development Step
The software implementation of power flow calculation (Grid Simulation) had not been done yet. The unique ID for each 3D components now needs to be imported manually by changing several lines of code. There is only one person can interact with the main controller at a time. The objective of this project is to develop a realistic simulation software for the smart table, make it smarter with multiple people interaction.
These include:

- Cooperate with a researcher from Control Group for implementing the real Simulation software for the table (power flow calculation).
- Design a more friendly interface for recognizing and import the new 3D module.
- Design user interfaces app for Android or IOS which can communicate with the main controller and allow multiple people interactions at the same time.
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