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## **IDP Project – Informatics (Full-time 3 to 6 Months)**

Zählerfreunde is a young CleanTech company with a cross-functional team of sustainability-driven software engineers and business economists. Our mission is to leverage the data of mandatory rolled-out smart-metering systems in the EU, to provide value-added functions to end-customers. The main goal, therefore is to create more awareness about energy consumption and facilitate the transition to becoming a prosumer. Zählerfreunde aims to become the most used smart-meter platform in the EU by providing a solution which can be used by large energy-related companies as a white-label product while offering an independent solution for smaller companies.

### **Project idea:**

PV surplus charging/smart charging by controlling downstream IoT/smart home devices using smart meter gateway data.

### **Basic question of the project idea:**

How can smart meter data in combination with IoT devices lead to more independence/flexibility and CO<sub>2</sub>/cost reduction?

After the installation of a new smart meter gateway, the end user does not receive any significant added value. They may already have various devices such as a PV system, heat pump, wallbox, smart sockets/washing machines etc. from different manufacturers and would now like to exploit the full data potential. In this project, we are combining both existing worlds and developing corresponding value-added functions on a common data basis.

### **Objective**

One of the previously mentioned value-added functions is the downstream controlling of various devices via APIs as soon as PV production is detected via the SM gateway. The end consumer can therefore manually set on the platform when and which device should be switched on (e.g. washing machine, heat pump) or at what time this downstream device should be fully charged (e.g. e-bike battery). The algorithm then takes over and optimizes the charging process in terms of PV surplus and, if necessary, the rest by drawing from the grid.

In the second step, this process is to be optimized by combining it with time-variable tariffs in order to make even the remaining consumption as cost-effective and sustainable as possible.

Hence, the students will work on developing the corresponding algorithms and front-end structures.