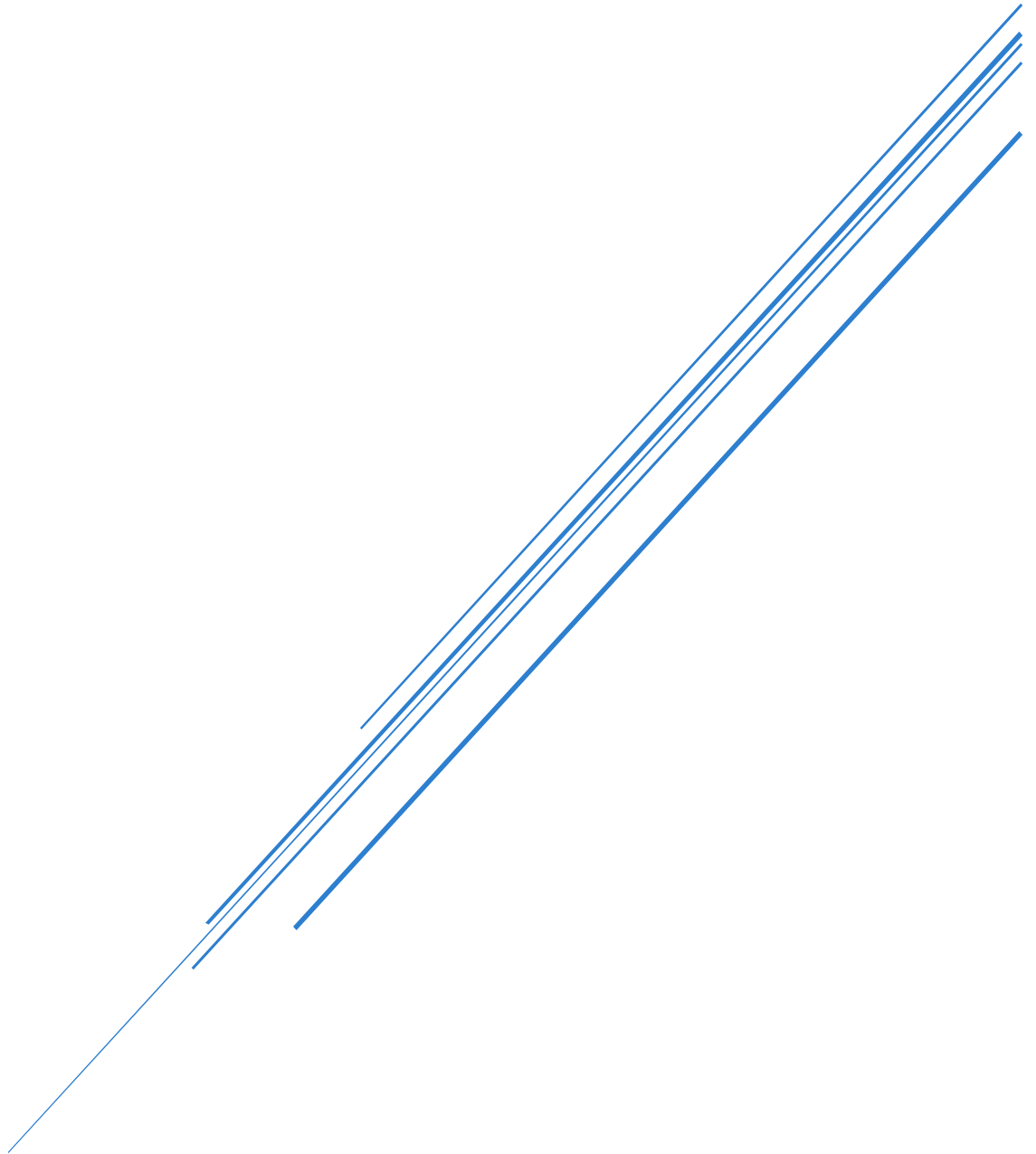


Distributed Systems

Project: Energy Community System – Group J

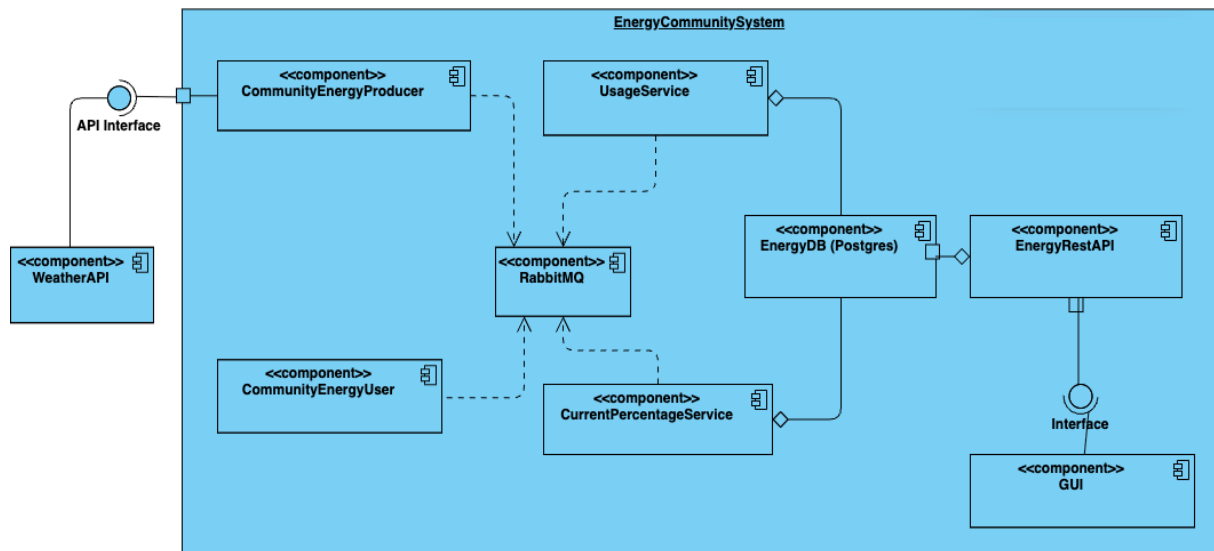
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Component Diagram

The component diagram illustrates the architecture of the EnergyCommunitySystem, which consists of several independent components. Energy producers and users send data to the system via RabbitMQ, where the UsageService and CurrentPercentageService process the data and store it in a PostgreSQL database. This information can be retrieved and visualized by the GUI through a REST API, while external weather data is integrated via the WeatherAPI to realistically simulate energy production.



ER-Diagram

The ER diagram represents a time-based energy monitoring system with two tables: current_percentage and usage_hourly. Each table stores hourly data. With the hour timestamp as the primary key, usage_hourly records actual energy values such as community production, consumption, and grid usage, while current_percentage reflects the proportional distribution of energy sources. Together, they allow analysis of energy efficiency and source dependency over time.

