

Project Objectives

- To develop a system platform which reads environmental conditions of a residential unit and publishes the data in real-time. To be used by homeowners to determine cost-effective methods in reducing energy consumptions.
- To design and develop a web-based wireless control system that receives and transmits information from the wireless sensors and switches.

Scope of the Project

The system will provide:

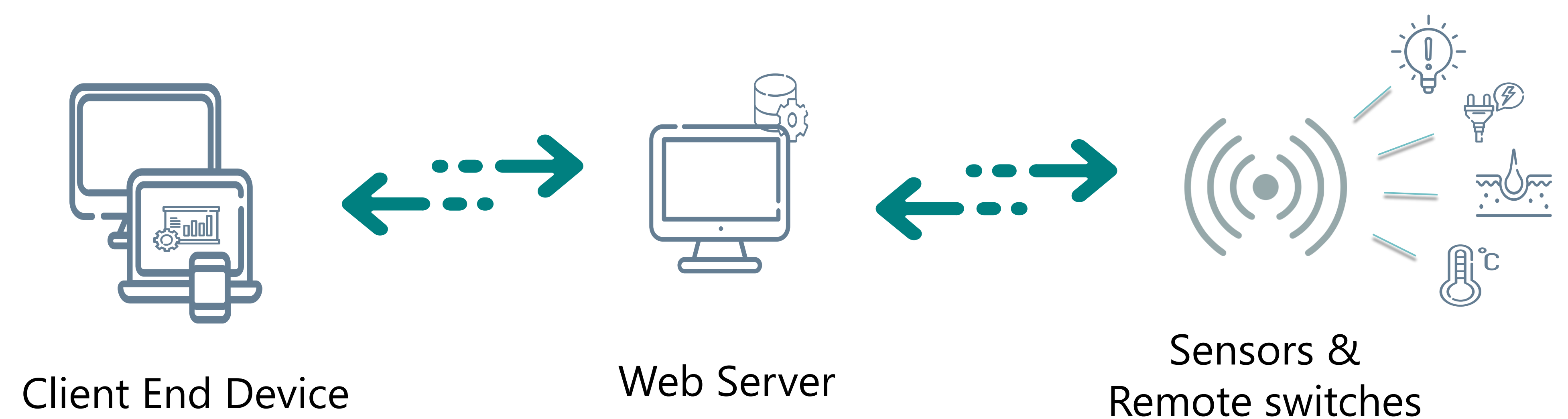
- Temperature Report
- Humidity Sensing
- Mass Airflow System
- CO2 Detection
- Smoke Detection
- Control remote devices such as heaters, vents, fans, and smart plugs.
- User-friendly Interface



Technologies:

Zigbee (Wireless communication), Raspberry Pi, Temperature and Humidity sensor, CO2 Sensor, MQ2 Gas Sensor, Mass Airflow Sensor, Intel Galileo (Web server), Relay module, etc.

Proposed Implementation



Web Page UI

Design and develop a user-friendly webpage to display all relevant data provided in the scope of the project from the server.

-Skills required: Knowledge of HTML, CSS, JavaScript

Web Server

The web server will be the backbone of this project. The server will both serve the communication between the end device and the sensors, receives and publish the readings from the sensors dynamically and provide control capabilities to the remote devices. The server will run on a Linux-based machine and interacts via web-browser.

-Skills required: Knowledge of NodeJS(JavaScript), C#

Sensors & Remote Devices

The sensors and remote devices will communicate with the server wirelessly. To enable wireless communication, Zigbee module will be used, a low-rate wireless network technology. An Raspberry Pi will be used to regulate sensor values as well as use the board to activate and control remote devices.

-Skills required: Knowledge of C/C++

**Infinite
Possibilities**