# Orientation - System Monitoring

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# Table of Contents

# Summary

Project will consist of two parts:

1. Metrics scrapper installed on a host machine, that collects and stores data locally in a lightweight database
2. Web-based dashboard that allows user to remotely access and view system metrics in real time.

Topics covered in this project:

1. Networking & Cloud
   - Remote access and real-time communication between host device and client.
2. Intelligent Technologies
   - Scrapper embeds into a device as a background process
3. Software Engineering
   - Client-server architecture, development using industry standard methodologies.

# Introduction

Infrastructure is the backbone of today's world. Millions of devices service our daily technical needs. Therefore there is a need to monitor and ensure these devices function correctly and operate within the computational limits. Even though I won't be able to create a solution for enterprise usage, I can try and provide a solution for the normal individuals.

# Topics

## Networking & Cloud

> - Remote device access
> - Websockets (TCP)
> - Scalability System Design

The project uses a client server architecture. Devices store all the relevant system metrics and communicate with their local database (server), while the web app displays the data (client). Every device acts like a independent node ensuring scalability.

Project reflects key concepts in cloud infrastructure and networking.

## Intelligent Technologies

> - Embedded software design
> - Hardware-software interfacing
> - Resource Efficient Programming

The scrapper acts as a continuous background process agent without changing the primary function of the machine. Moreover the system metric data extraction needs to be done without additional computational power, relative to the resource efficient programming used in Embedded Systems.

## Software Engineering

> - RESTful API
> - Client-Server Architecture
> - Web Development

The Projects project uses a client-server architecture,also used in web development. Moreover it uses development standards like version management (git) and RESTful APIs.

# Conclusion

In conclusion, the project outlines a major learning experience, covering key topics in the area of ICT (networking, embedded systems), overall being and interesting and reasonably complex second project.