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Temperature Control System Preliminary Design

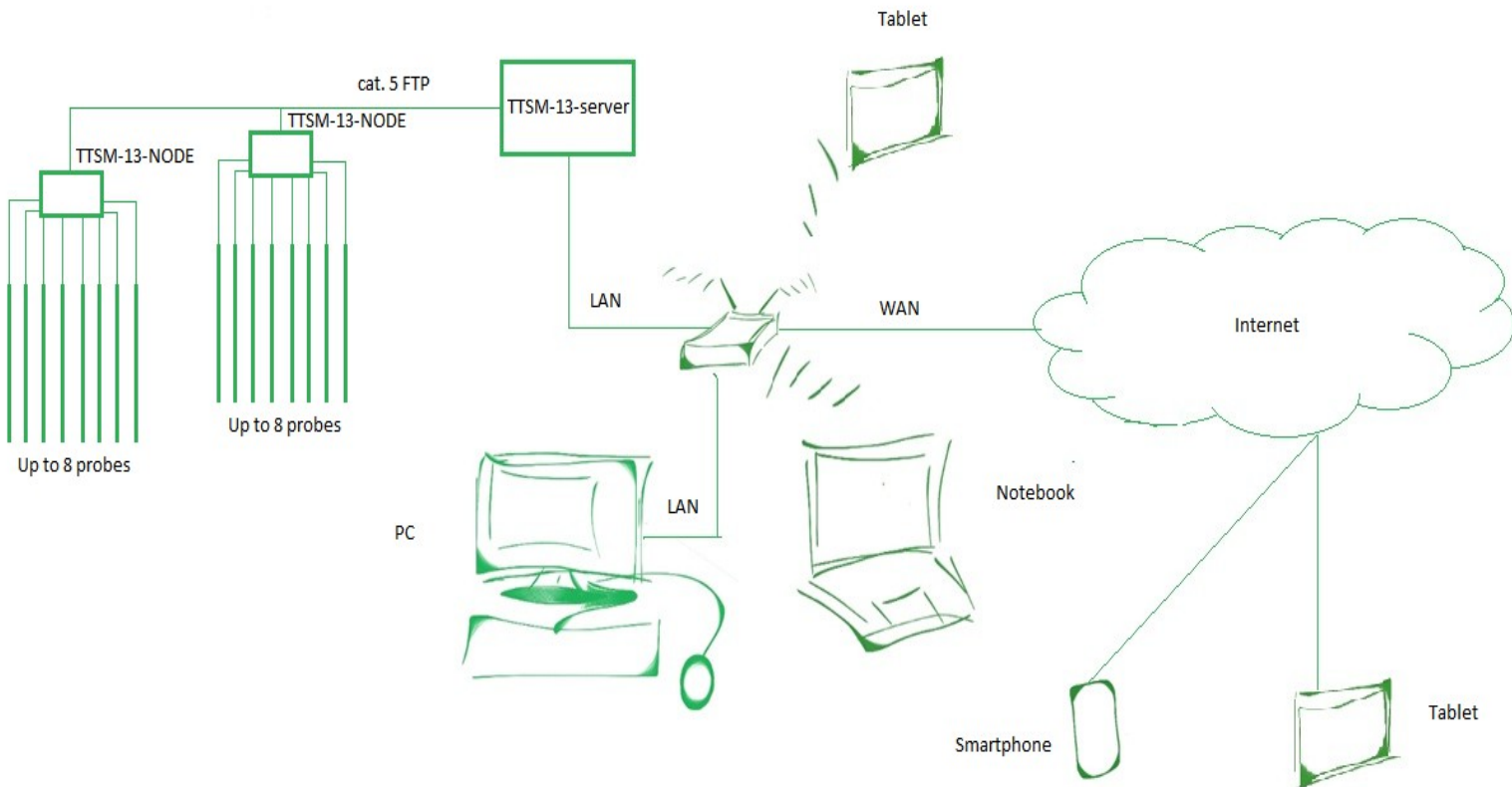
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Submission:

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Abstract

This document describes the suggested design of a temperature control system. As such, all the information listed below is subject to change.

Architecture



TTCS-13-NODE:

- A concentrator and interface converter.
- Has 8 probe inputs and an RS-422 MODBUS slave.
- A MODBUS master device like TTCS-13-SERVER or TPLC-12-1-MAIN can read its temperature data at any time. The RS-422 connection requires cat. 5 FTP cable.

TTCS-13-SERVER:

- The main system module.
- Connects to multiple TTCS-13-NODE devices via a single RS422 bus.
- Has an ethernet port for internet connection to supported client devices – PCs, Laptops, Android tablets and smartphones.
- Clients can view current temperature as well as history stored on the server. Alarms can be configured on selected temperature thresholds both on server and client.

Visualization

Since development has not yet started, we are open to suggestions as to what the visualization should look like. There should be a simple table view mode as well as some other more user-friendly mode. We are ready to implement this based on client request.

Future development plans

The following are optional and might be implemented in the future:

Interconnectivity between PLC and Temperature control systems:

TPLC-12-1 PLC device should be able to connect to TTCS-13-SERVER to access temperature sensor information and include it in the logic of operation.

Cooling / heating system automation:

TTCS-13-SERVER should support additional I/O modules and automate the process of temperature management.