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ABB Modbus Project

Metropolia University of Applied Sciences

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Abstract

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This project aims at creating a ventilation fan controlled via Modbus protocol with its own LCD user interface. It can also be controlled via web interface.

The fan supports both an automatic and a manual mode.

In automatic mode, the pressure level in the ventilation duct is set to 120pa; the controller measures this pressure and adjusts the fan speed accordingly.

In manual mode, the fan speed can be adjusted in the UI.

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# User Manual

Web Interface:

* In Manual Mode, the fan speed can be adjusted by the slider.
* For Automatic mode, the fan will adjust the speed to the target pressure that is input by the user.

Due to unforseen errors and time constraints, mqtt has not been implemented in the interface, hence the website is not fully functional.

Button functionality:

* SW2 changes the mode. Available modes are: Automatic and Manual.
* SW1 increases the target value.
* SW2 Decreases the target value.

Automatic mode:

The user provides a target pressure value which is automatically achieved by the system. The mode of operation is displayed as AUTOMATIC. Target pressure range is between 0 and 120pa. If the system does not reach the target pressure within 10 seconds, it produces an error message – which can be cleared by pressing any of the buttons.

Manual mode:

The user provides the fan speed based on the desired pressure. The mode of operation is displayed as MANUAL. Fan speed ranges from 0-100, with 0 being OFF and 100 being the highest possible speed that can be achieved by the fan.

# Wiring and System Diagrams

The wiring and system diagrams followed the diagrams below:

**Diagram

Description automatically generated**

**Diagram

Description automatically generated**





