

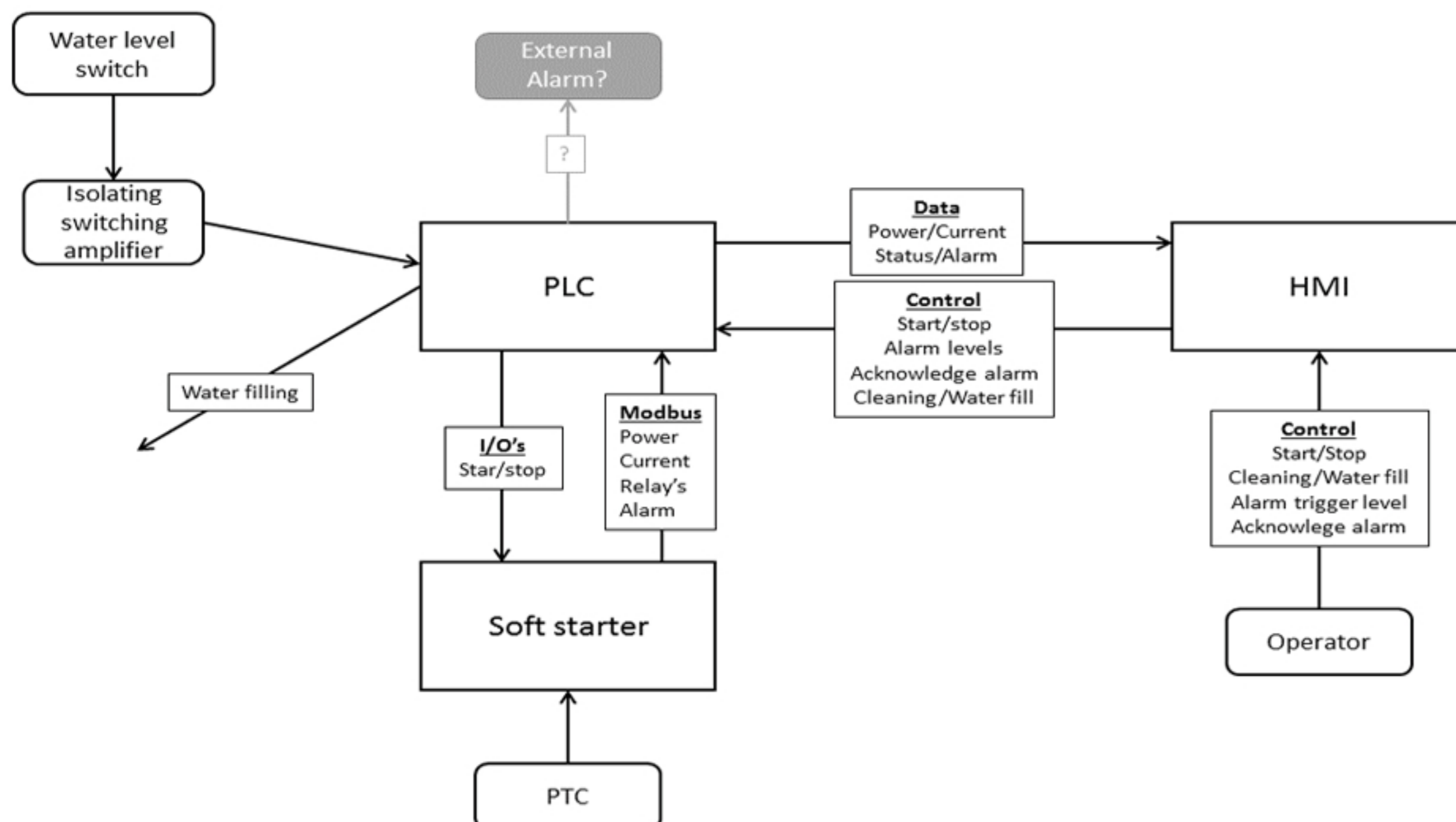


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Implementing an agitator with a soft starter controlled by a new HMI

Introduction

When an agitator is in commission for an extended period of time, the impellers can become clogged. In order to clean the impeller, the agitator is run backwards. This is one of the main functions for a product that CG Drives & Automation is developing for a customer in the agitator business. The purpose of this bachelor thesis is to develop and test this product for CG Drives & Automation.



Method

The product is an automated smart agitator control system. It consists of a PLC that is connected to a panel that runs the HMI. The PLC is also connected to a soft starter that helps reduce the mechanical stress in stops and starts. Through the help of contactors, the motor can run backwards thus cleaning the impeller. The components are built into a cabinet by Rittal which is installed on site near the agitator.

The soft starter is connected to the PLC both through hard wires (IOs) and Modbus TCP/IP. The hard wiring is used for crucial commands that are not allowed to fail, such as start and stop. Modbus handles the communication of other data and functions, such as the current and power percentage that is displayed on the screen. An operator can also run manual cleaning sequences and acknowledge alarms in the interface.



Conclusion

Despite the numerous amounts of technical difficulties that arose during the project, it was completed on time and according to the specification. However, the setup has not been tested in the correct environment because a suitable agitator was not accessible. A smaller electrical motor was used as a substitute for the real agitator.