Master’s Thesis Proposal:
HMI development for asphalt plant SCADA system

Background
Göteborgs Processteknik AB is a Gothenburg based small business that develops and sells control systems for asphalt plants. They have designed all components in-house, from the process computer, I/O modules on CAN/CAN Open, to the Supervisory control and data acquisition (SCADA). Their product connects and coordinates all machines and processes in the plant from silos of fractions (the rocks) and bitumen to readymade asphalt that is loaded on customer trucks for transportation to the road pavement site. The system is installed in over 30 plants in Sweden and the Nordic region.

The purpose of this thesis work is to help them develop a modern HMI (Human Machine Interface) for the SCADA system. The current HMI is written in Delphi and part of the task is to assess alternatives and develop a more flexible HMI solution that can function on any mobile device. This thesis work offers an opportunity to work independently on an industrial problem to develop and test a new and improved version of the HMI in an industrial pilot.

Tasks
- Perform a survey of existing HMI solutions and state of the art for process control and monitoring
- Determine the HMI needs within asphalt production control and monitoring
- Develop a new HMI solution and perform an industrial pilot study at an asphalt plant

Goals
- Select and propose a HMI platform that GPT should use in the future
- Implement functionality for control and monitoring activities in a pilot solution
- Evaluate and give recommendations for further development based on the pilot study

Conduction and Means
- This thesis work is for 30 credits and available to one or two students. Earliest start is December 2017.
- Office space will be provided by the company
- Financial compensation will be given after completed thesis and possibility to continue on additional projects or a permanent position

Keywords: HMI-development; Industry pilot; Programming; Network communication; Microsoft Azure;

Requirements: Spoken and written Swedish

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