Develoment of a predictive maintenance application for packaging macines

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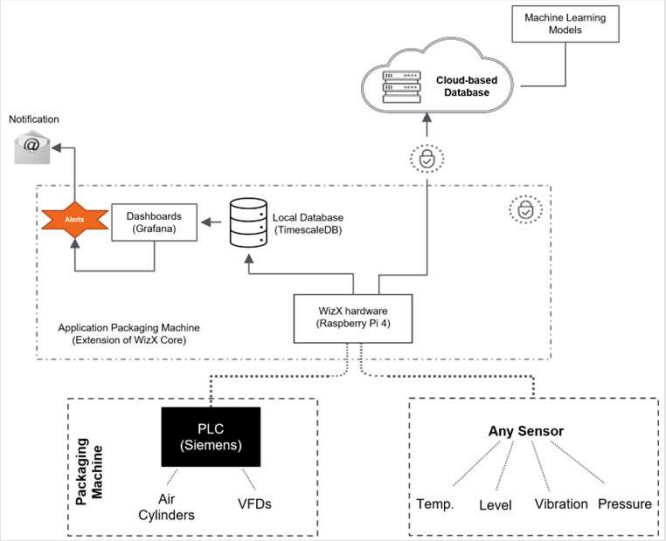
Introduction and background:

Goodtech AS builds machines and lines for handling packaging in the food and pharmaceutical industries. The packaging machines include, among others, pneumatic air cylinders and servo motors driven by VFDs. Like any other component, pneumatic air cylinders have a lifespan. Once it has been in operation for a certain number of strokes in km, it must be replaced. Regular maintenance of servo motors, such as lubrication, is also required. Packaging machines are maintained by customer service departments within the packaging machines owner. If one or more cylinders reach the end of their service life, the entire packaging machine may shut down. If spare air cylinders are unavailable, it may take longer to restore the machine.

Problem description and objective:

The main objective of this master's thesis is to develop a secure application that monitors the air cylinder's life service based on the cylinder supplier's approximate service life value and will notify the operators in advance before it is time to replace the air cylinders. By monitoring the operation time (running hours) from the VFDs, the maintenance of the servo motors can be controlled and better planned. Thus, the unplanned shutdowns of packaging machines are being reduced. Furthermore, by implementing this application, by continuously monitoring the packaging machines, the maintenance of the air cylinders goes from regular inception to continuous monitoring. The collected from cylinders, VFDs and sensor should be stored in the cloud. A proposal of how Machine Leaning can be implemented to the application for predictive maintenance of the packaging machines.



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