

THESIS WORK 30p

Virso, Västerås, 2019-04-16

Mechatronics project 30P

Transform a concept to a final product.

- **Mechanical Design**
 - **Casing**
- **Electronic assembly**
 - **Sub system design**
 - **C/C++ programming**
- **Front end programming**
 - **Front end “design”**
 - **Front end control system**

This thesis work consists of two parts, a design and manufacturing of a product and a study/evaluation and decision model of chemical composition.

- **The first part is to convert an existing concept into a product to be used in our in-house production.**
- **The second part consists of evaluating measurements taken by the product and create a decision model of chemical composition.**

Mechanical design and product manufacturing.

There is today a concept available consisting of several electronic parts. The different electronic components needs to be consolidated and encapsulated into a casing. The overall work of part one is to create the best solution for taking the current prototype into a final product that can be utilized in our in-house production.

- **Optimize the electronic components into a smaller space.**
- **Create a casing to fit the product and its surrounding interfaces.**

- Manufacturing of this new product depends on the outcome of the project and can be made from purchased parts or in-house 3D-printed parts.
- Create the software needed on the embedded solution
- Back end solution exists.
- Create the front end solution that a user will interact with.
 - Evaluate different solutions such as light ramps or monitors.
 - Logging and user inputs may be needed and this requires a software interface.

Evaluation model.

Once the hardware is created it should be installed into one of our assembly lines. The data collected from the line shall be stored in a cloud service, by the device, and shall be evaluated. A correct type of decision model shall be created based on real tests. The model should be able to assist in quality assessment of the manufactured end product. A lot of data collection and analysis is needed to understand the basis of decisions. Multiple iterations of the code and the decision model most likely needed to get the correct solution. It could be possible to investigate AI and machine learning. This is made in our factory in close collaboration with our research team.

Location

The main work of evaluation will be performed in Virsbo. Easiest way is going by train to Virsbo train station and walk 5 minutes. All travel expenses from Västerås, Kopparlunden to Virsbo will be covered by Uponor AB. Most of the programming and mechanical design work can be made from the local office in Västerås, Kopparlunden. The estimated work effort is about 40/60% divided between Product creation and evaluation model.

Support

The expertise in the company will assist in both the design work and the model creation. The mechanical, electrical and programming knowledge is available as well as the possibility to utilize the expertise in chemicals in the research department in Virsbo.

Manager PEX pipe

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Application

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About Uponor

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