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Program: Master of science in software technology and technical mathematics
Course: 1DT902
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Aquarium Monitoring

Project plan

Description and background of idea

One member of our group had to move closer to Växjö in order to Study in Linneaus university and with this a dilemma was created for his pet fish. He for once has to regularly visit his family who is still left in Karlstad and also has to come to the university to attend class and lab sessions. This makes the time left to maintain the health and state of the aquarium and the fish inside very limited. The group's idea is to create a food dispenser for the fish in the aquarium and also have a live telemetry of the state of the water inside the aquarium like temperature and if the level of the water is at a sustainable level for the fish.

The group will not only code functionality for our sensors but we will also build and construct the structure in which the food will get dispensed by. We will create brackets for our sensors and pycom but also a funnel for our food together with a mechanism for the actual dispensing of the food that will be controlled by the pycom and its sensors. These brackets will be modelled in a graphic 3D environment called 360-Fusion. The group will also create an alert using an RGB-Led to indicate a status of the water, for example, when the water level is too low, when our container of food is empty and an indicator when actively dispensing food.

The group will with the combined knowledge taken from this course make a food dispenser for live fish living in an aquarium. The group also wants to improve and expand our knowledge of python- and microcontroller programming.
The group chose this project not only because we wanted to complete the course but we wanted to create something that can be of use in a person's daily life and that can be used *after* the course is finished.

General Requirements

The group has chosen to divide the general requirements in two different parts. We will have one list of requirements which will cover the fundamental demand for this to be a sufficient product and project and the second will be optional if the group has time over to add more luxurious functions.

Strict requirements:

- **Feed the fish**
- **Show temperature of the water**
- **Alert for refilling of container of food**
- **Get alerts knowing the status of the temperature and dispenser (IoT)**

Optional requirements:

- Show if the depth of the water is sustainable for the fish
- Button to dispense food on command regardless of the scheduled dispense

Bill of materials

- Water sensor
- LCD-Display
- Stepper motor
- Temperature sensor
- Button
- Proximity sensor
- Film for 3D-printer
- RGB-LED
- Resistors for components

Time schedule

Time schedule will be visible in the google sheet below :
Time schedule

Grade ambition: A+

Being a student regardless of program or personal goals means having the desire to obtain something great. Our ambition is important because our determination is what dictates the shape of our future. We not only want to show the teachers of this course our ambition, pure will and motivation to succeed but we also want to show this to ourselves, fellow students and the people that rely on us, engineers, to create a future better than today. That is why this group strives for the highest possible grade in this course.