Projectplan

Project software engineering

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Introduction

During the second year of ACS the students are expected to create a weather station. The subject will be graded for 6 ec's. The project will follow scrum for structure and planning. The clients are Mr.Slot and Mr.Tangelder. The main part of the project is getting familiar with putting together different subjects which have been learned in the past into one project. These subjects are datastructures, databases, programming 1, programming 2 and software engineering. At the end of the project the team has a complete weather station and is able to combine different

Summary

LoRa is a long range data transmitter used for the TTN (The Things Network). This network is used to let things communicate to the internet (hence the name, The Things Network) without the use of 3G or WiFi. A weather station will be connected to this network to measure several atmospheric values. Values included are: humidity, temperature, pressure and wind speed. Values are displayed in a GUI (Graphical User Interface). The LoRa will connect to the TTN by using the MQTT protocol. The device which will be used is the LoPy. This device contains the sensors to measure the required values. The LoPy is able to connect automatically to the LoRa. LoRa has a duty cycle of 1% so it is imperative that data sending is efficient and small. Data will be stored in an SQL database. This database will be connected by using JDBC. In week 2.7 it is expected that a complete weather station is delivered with a database, a GUI, LoRa/TTN connectivity, a report containing all the data about what the group did during the project and a reflection.

Figure 1: the lopy connected to atom with open terminal

Communication

For keeping everything efficient and structured it is important to have a clear line of organisational structure. The group will use ***Github*** to store all software related material. Well written comments are important when a new piece of material is submitted to prevent confusion and disorganisation. A base line of communication has been created by using the medium whatsapp. The group is supposed to meet at least three times a week which will be on Tuesday, Thursday and Friday. If needed (in case of sickness or absenteeism) the team is always able to plan in an extra day or continue to work longer on specified days. Scrum will be used for planning and executing during this project. ***Trello*** will be used as a medium to follow ***Scrum*** where as Excel will be used for the burndown charts. The backlog might be the most important thing of scrum where it gives structure and priority to the different to-do's in the project. During the project there are 3 sprints each consisting of 2 weeks which will be executed. The following dates have been tagged for sprints:

27 november – 8 december
11 december – 22 december
25 december – 19 januari

In the backlog several tasks has been defined which are supposed to be executed during the project. It is important to keep the different tasks small as well as specific so it is easier to define how much progress the team has made in a certain sprint. This will make it easier to use and understand the burndown chart. In the table below is an overview of tasks.

Teammembers

The team consists of five members, these are:

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Appendix

Description of task	Amount of points	Definition of done
Lopy-LoRa research	3	A sufficient – good understanding of the modules
LoPy connectivity to database	5	A working data connection between the two components
Research LoPy sensors	2	An understanding of the functionality and implementation of the sensors
Program the sensors	3	Sensors are able to create useful data
TTN research	4	Understand the idea and use of TTN
Understand and implement MQTT broker	5	Protocol functions as intendend for the LoRa – TTN
Connect LoRa to TTN	3	A working data connection between LoRa and TTN
GUI: determine display data	1/2	Group and client agrees on data which need to be displayed
GUI: implement data and graphs	7	Gui is able to hold and visually show the data in an understandable way
GUI: connectivity with database	1	GUI can read data from the database
GUI: complete interface	6	User interface which is easy to use and read for the client
GUI: testing	1	Checking and fixing bugs
SQL: create the database	1	Data can be stored in the SQL database
SQL: implement JBDC	4	A sensible connection has been created
Make a app/website	7	Functional app/website with full control of weather station and relevant data
Final report	6	Written document which can fully explain the decisions and actions of the entire project

Only when a tasks fulfill the specifics of the “definition of done” it is written off on the burn down chart.