Milestone 1 Summaries Group W4

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Milestone 1

The first Milestone was about finding and presenting project ideas combined with some reasearch about existing projects and related papers.
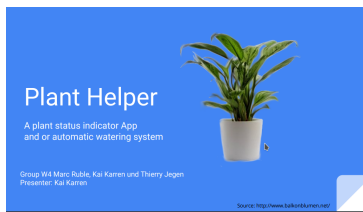
1. Idea Plant Helper

Figure 1. Plant Helper

One of our ideas was to build a system called Plant Helper. The idea was to support people to taking care of their plants. The basic setup would contain a arduino and some basic sensors like moisture, light/brightness or air humidity sensors to gain the information needed to indicate to the user how healthy the plant is. But how to indicate this to the user? After some discussion we came up with different possibilities to give feedback.

- Indication by one or more LEDs e.g red and green led or an RGB LED

- writing an APP for displaying status information and log the data

- or use other options like seven segment displays or LCD screens.

Finally we decided that the APP would be the first way to go and the LEDs would be a nice addition. In order to extent our idea we also would like to implement an automatic watering system for the plant. So our concept of Plant Helper would be a Plant Status indicator APP in combination with an automatic watering system.

Related work

In the imagination phase we also looked at already existing solutions and papers. Especially the paper http://www.collantropol.hr/antropo/article/viewFile/1564/1518

showed a good starting point for building an automatic watering system which would extend with an APP that would have some kind of a plant diary with nice fancy graphics and tips and tricks. We also looked at other papers like and APPs like Gardenia however most APPs with a related functionality don't have the feature set we wanted to have.

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http://www.collantropol.hr/antropo/article/
viewFile/1564/1518
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http://ijarcsse.com/Before_August_2017/docs/
papers/Volume_4/10_October2014/V4I10-0228.pdf
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2. Location based Notes

The second idea was a system for for placing and interacting with Location Based Digital Notes. This would be achieved by a smartphone app which uses GPS to constantly know the users location and internet connection to communicate with a server. A user could place digital notes at his position or find the notes of others.

Notes are bound to a GPS location and contain text and/or pictures. To find a note a user would have to be close to its location. When placing a note for others a user could choose if he wants to connect a challenge with it. This could be simply a quiz question, some kind of movement (like running somewhere and back in a certain amount of time) or a unique riddle. Another would have to complete this challenge before being able to open the note.

Some purposes for using this app would be:

- placing trivia to places or hide secret messages

- challenge other users (e.g. with riddles)

- use notes (with challenges) as kind of a framework for games (e.g. paper chase)

Related Work

A project at HBKsaar was a big inspiration, especially of how you could use such a system:
http://www.xmlab.org/projects/projektbeschreibung/article/top-of-the-lake/

Other articles with similar topics in research are:
https://link.springer.com/chapter/10.1007/11551201_14
https://link.springer.com/chapter/10.1007/3-540-45427-6_2

3. Automatic shutters

Our third Idea we had, was to implement an Automatic shutter system. We had the idea when one of us was watching TV and the sun started shining onto the TV screen. And because

we students can sometimes be very lazy we thought it would be a good idea to implement a System so that we do not need to get up and close the shutters, but the system automatically detects if the sun is shining onto the screen and then closes the shutters.

We decided to use a Basic Arduino with a light-sensor, which detects if the sun is shining or not and then either closes the shutters or opens them. Furthermore we wanted to give the user some more control over the entire system by implementing an App so that we can decide if we want to close the shutters using the automatic system or not. Because the user might not want to use the shutter system at all times. Additionally the user should be able to control the Shutters using the App, but our priority lies on implementing only the automatic System and if the time allows it we will implement the App.

One could expand the System using a humidity sensor to close the shutters when it is raining to avoid getting dirty Windows.

Related Work

There is currently a company called Somfy that build Shutter Systems controllable by a Phone Application. https://www.somfy.de/

Additionally we found a Paper from Sauter which has a detailed explanation and implementation of an automatic shutter system in order to save energy in a house, yet the system they use is quite expensive and our system would be much cheaper and simpler.

https://www.sauter-controls.com/uploads/tx_cabagpdm/839281.PDF