Faculteit Ingenieurswetenschappen

KU LEUVEN

PROBLEEMOPLOSSEN EN ONTWERPEN, DEEL 3

Team CWA3

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Quantified bike

PROGRESS REPORT

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1 Group members

The group consists of the following members.

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2 Brainstorm

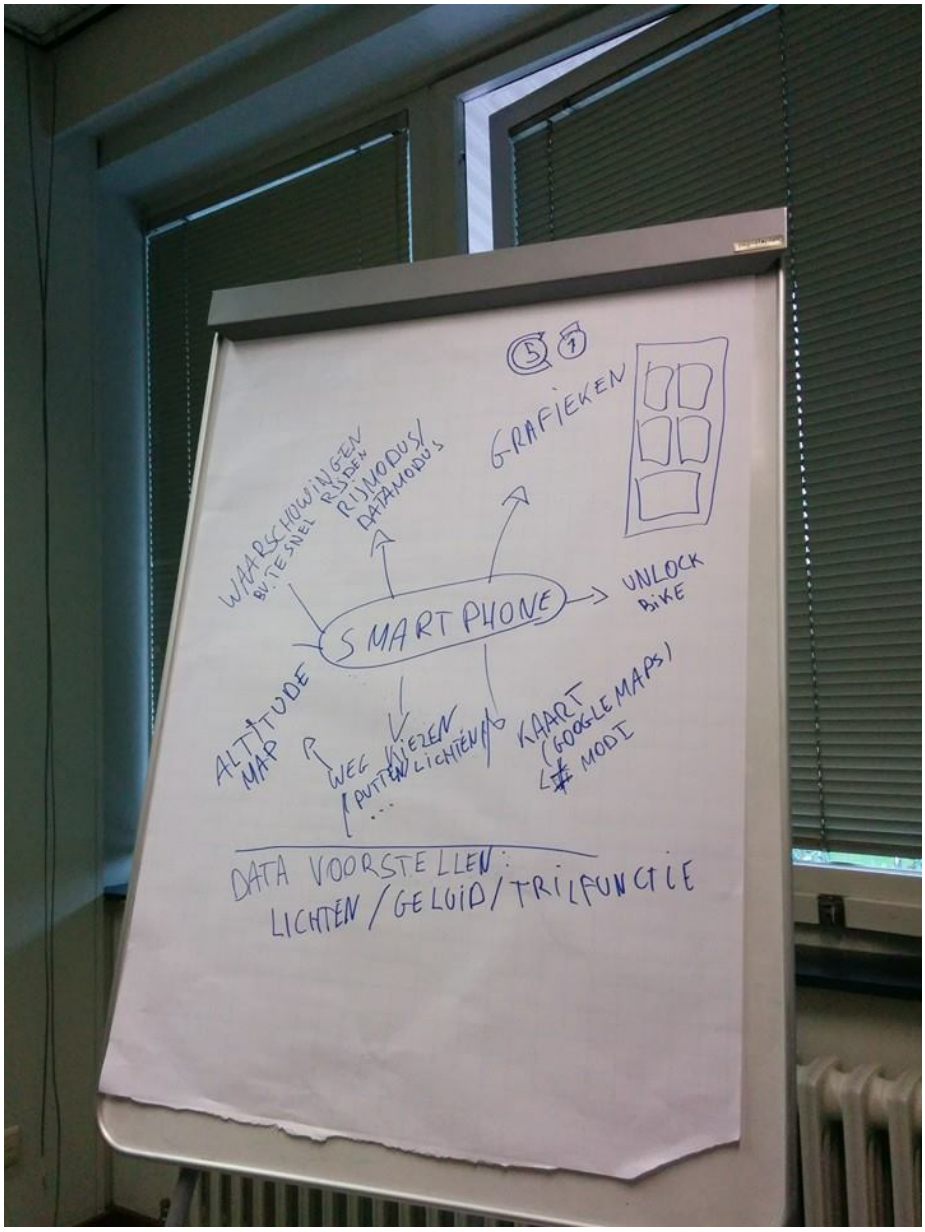

Figure 1: First brainstorm

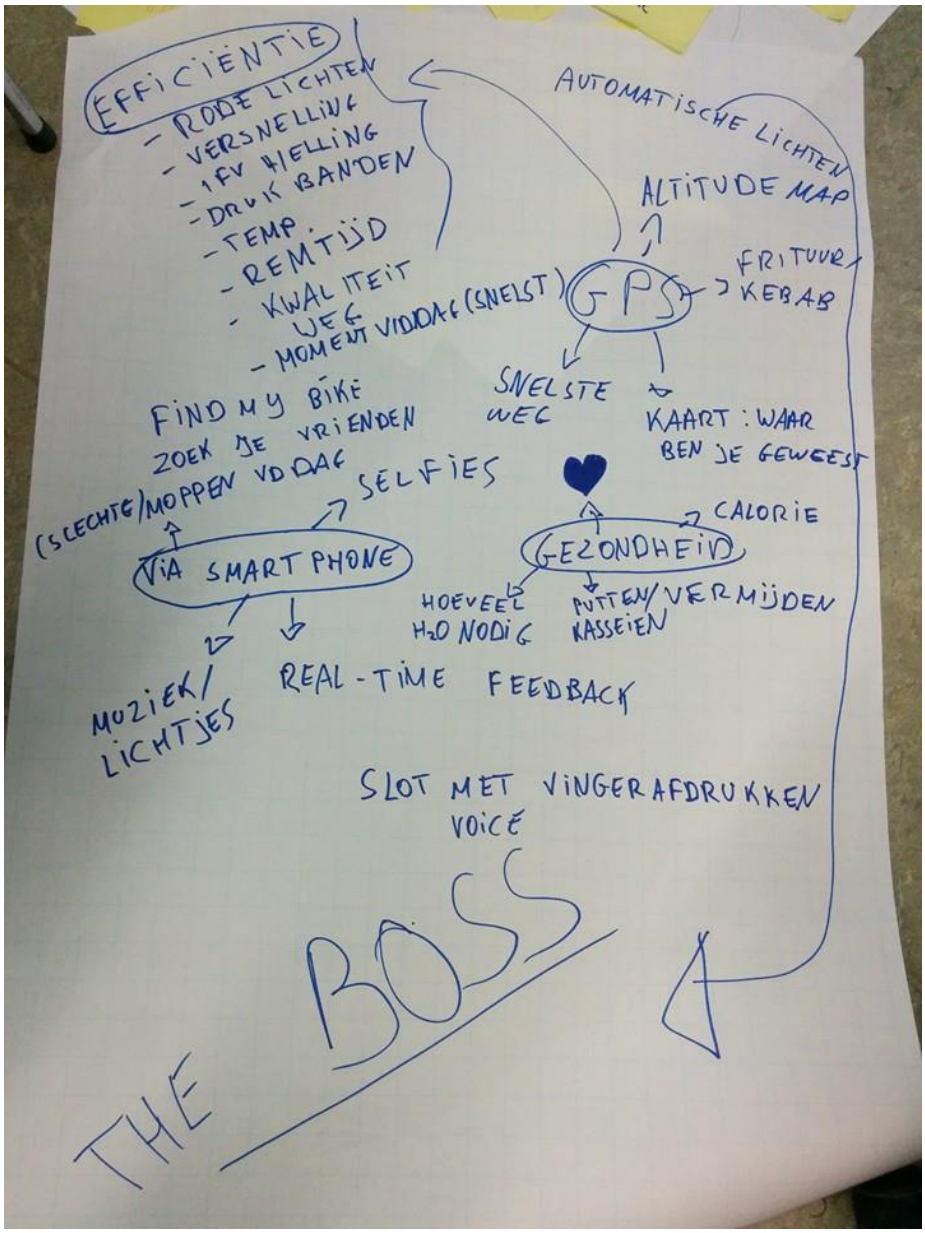

Figure 2: Second brainstorm

3 User stories

3.1 Comparing daily trips

Sophia uses her bike and the BOSS on a daily basis. She bikes to class every day and clips the BOSS off her bike so it does not get stolen. On the BOSS website, she can easily review each trip she made in the calendar overview. She can get a general impression of how she did each day, and then she can compare

her stats with a ranked list of the stats of her friends. This would include the most traveled distance, the longest bike trips (in time), the fastest speeds, etc.

3.2 Sharing biking experience with friends

Luke likes to go on bike trips for fun and exercise. He sometimes doesn't know where he will go, but he can easily find out where he's been in the BOSS's detail page on the website. When he sees a beautiful view, or just something interesting, he can easily take a picture on the built-in camera with a click of the button. He can also press a second button to mark certain points of interest. The points of interest are displayed with the photos on a map of his route that he can share with his friends on various social media sites (Facebook, Twitter, Google Plus,...) On top of the map, he can share various statistics of his trip (how bumpy the road was, how fast he went, how hot and humid it was) along with personal comments and ratings. If he wants, he can also view the statistics and comments of fellow cycling friends.

3.3 Fitness stats

Johnny likes biking for sport, and loves using the BOSS to record his data. He always keeps the BOSS on his bike, and only has to flick a switch to turn it on or off. After each ride, he goes to the BOSS website to check specific details of how he did, and can compare his performance with previous rides, made possible by the detailed compare view of the BOSS website. Furthermore, he can also compare his data to his competitive friends, by use of simple numbers (for the mean speed, travel distance and travel time), or with graphs (speed during a trip, measured temperature throughout the trip, heart rate, etc.) Finally, he can challenge his friends to do beat his results via various social media sites.

4 Architecture

Our application mainly consists of 3 parts. A Raspberry Pi and an Arduino Nano are mounted on the bike to collect the data. The other one is the web interface.

5 Used technologies

6 Course Integration

7 Conclusion

8 Appendix: Workload

9 Appendix: Planning

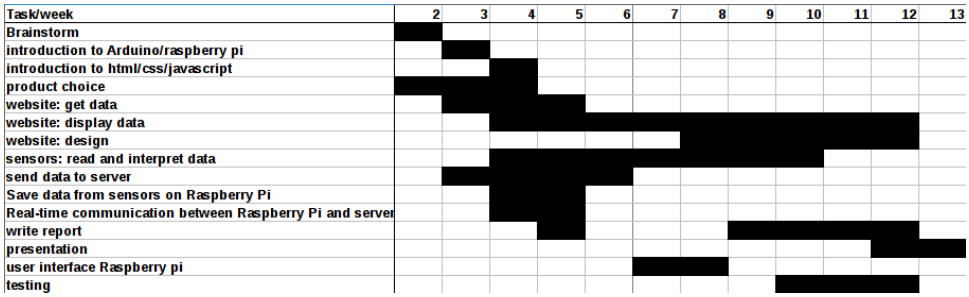

Figure 3: Gantt Chart

10 References