Project Vision



**Motivation**

This document works as a guide for the relevant stakeholders involved into making the product a success. The need of potential opportunities to grow in the software engineering area is satisfied with the concrete application of abstract concepts, management theories and frameworks into practice, using students' personal ideas and implementations into creating a software product.

**Goals**

The very high end of this experience is to understand what software development is and how to apply it to a small business case, taking into consideration variables such as time, hardware, requirements specification or team member's inexperience in certain domains(as students).

As a school project, the learning perspective has seen the strict implementation of agile software development principles (Scrum) directly into the field. Applying theoretical engineering concepts in practice would contribute to the expansion of the developer team’s experience in using different tools, languages, and methods to boost problem-solving nature of the subject we are studying and get ready for the industry. For this purpose, working in teams, accepting all the challenges that comes with it, the organisation and scheduling of tasks, the definition of goals and time management will be just some of the outcomes of this experience.

From a software development perspective, a simulation of scrum master will be appointed, regular standup meetings and meetings with product owner will be defined. The division in two-week sprints and the creation of a backlog will keep user stories to be completed using an iterative and incremental approach. Other agile techniques are to be adopted inside the project, such as pair programming and code review.

From a business perspective, the application’s main objectives, among others is to allow the user to control a car prototype powered with Arduino board and Raspberry Pi through an android phone, retrieve real time gps updates of other cars in the area and being able to make them following the user. The implementation of a camera captures the entire voyage making it accessible within the application, alongside with the detection of different obstacles through the various sensors mounted to the car chassis.

**Solution**

The application allows users to register, in order to access its main functionalities. All confidential data is encrypted and saved in an online database. A friendly user interface which gives access to control view and gps map is presented. Future increments which would maximise core functionalities and features are possible; it would though, require further sprints which could be continued as personal project achievements.

**Budget**

Despite the fact the IT Department of Gothenburg University is available to supply most of the components in order to successfully deliver the basic functionalities for the required project to successfully pass, dream features, such as following function would require additional materials. For this purpose, the development team has settled an estimated initial budget of kr 3000.

Team members are also willing to contribute by bringing personal components into the project.

A servo, raspberry pi camera, AA batteries, voltage divider, heat sink and other small peripherals are likely to be a necessity in the middle-end age of the project.

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| Description | Quantity | Unit Price | Cost |
| Raspberry Pi | 1 | kr 300 | kr 300 |
| Lidar | 1 | kr 2000 | kr 2000 |
| Sensors | 5 | kr 30 | kr 150 |
| Various Miscellaneous hardware | N/A | N/A | N/A |
| Total |  |  | kr 2450 |