**Amsterdam University
of Applied Sciences**

Rover Rescue System

Business Case

Author:
Christiaan van Arum
Raphaël Bunck
Nino van Galen
Martijn Vegter

Student Number:
500778983
500774349
500790589
500775388

January 13, 2019

Contents

1 Introduction

Technology has become the answer to a lot of today's problems. Transportation, communication and security are a few examples where IT has come in handy. When you combine these possibilities and take a great team to develop a product, you get a rover that can help humans in tight positions. To realize a product that can rescue humans in disasters such as earthquake-sites, terrorist attacks and the like, the project "Rescue On Wheels" has been setup.

2 Problem, need and advantages

2.1 Problem

The moment an earthquake happens or a bomb goes off the location is considered dangerous. On said site other people should not be put in danger too. Nevertheless the places where victims might be stuck could be not easily reachable by humans. And even if the location is easily accessible, another disaster could be triggered by a heavy object such as a human.

2.2 Need

Given the previous stated problem the idea of a robot. The robot we will design will be a semi-remote-controlled unit the size of a big cat. The rover will be able to explore a disaster-site with ease due to its small size. In addition to its size we'll design the rover with a special treat, being a pan-tilt camera.

2.3 Advantages

The fact that that a disposable robot can be put in danger compared to a person is a great advantage. The size –and thus the weight– of the robot will be a factor that makes rescues a lot more likely to succeed. Additionally the pan-tilt camera module enables the operator to use virtual-reality to emerge in the site.

3 Schedule

3.1 Sprint 1

In the first sprint of this project we will focus on the basic operations of the rover. This means that we can move the rover forwards, backwards and make it turn.

3.2 Sprint 2

In the second sprint we will add the functionality of remote control via a mobile application. This will be done via Wi-Fi, radio or 4g.

3.3 Sprint 3

This sprint will be dedicated to the the ability of streaming the camera feed to the control application.

3.4 Sprint 4

In the last sprint we will focus on adding image recognition.

4 Requirements

4.1 Functional

- The robot must be able to drive forward, backwards and be able to make turns.
- The robot can be operated form an other location, by means of a controller
- The robot will be able to stream its camera sight.
- The robot will be able to recognize people.

4.2 Non-functional

- The user can look around with the VR-headset.
- The camera mount mimic the position of the VR-headset.
- The rover will auto-stop before collition.