# Introduction

Hylte Municipality is the only inland municipality of the region of Halland, in southwest Sweden. There is a small population for a large area. For that reason, this countryside municipality faces several major issues.

First of all, there is a problem of distance about the hospital. In case of emergency, the closest hospital with all the specialists is 30min far from Hylte, in Halmstad. People there worry about their health and the lack of health care services is important.

Also, the city is quite spread, and it is a problem for nurses to visit several patients in a short time. They need time to drive to their home and this time is wasted.

This is a problem both for nurses and patients because they can start worrying if it takes time to be helped.

Nurses don’t have time to make report in details of the consultation and just write down everything on a paper. That is not a good way to keep personal information, people’s privacy is not respected. On the other hand, information written on a paper can be lost easily and may be not send correctly to other professionals.

Hylte is the city in Sweden which hosts the most of immigrants. Therefore, they must be well-integrated there. They have the same rights as everyone else and have to be informed about the health services. It is necessary to promote health and well-being in order to make them feel comfortable.

In this project, it is important to take in account all the actors who might be concerned. Emergency department, nurses and caregivers have their opinion and their needs. That is why we have to meet them, to collaborate and start developing innovative solutions depending on what they really need. The patients opinion have a key role to play for us to suggest the right solution thanks to their experience.

# Purpose

The main purpose of this project is to figure out the problems that the municipality is facing concerning the emergency response, in order to improve it.

# Goal

The main goal is to implement a robot that could respond to a specific emergency case. The system will be developed at a small scale, in order to simulate the different potential scenarios in a 3D environment.

# Requirements

This project will be developed with the material given by the coordinator. Therefore, there is a limit regarding the functionalities. Those functionalities are defined with the used robot : AlphaBot2 for Raspberry Pi-Zero. All software shall be implemented using Raspbian, the Raspberry official supported operating system.

# Methodology

## Hardware

### Robot

AlphaBot2-PiZero robot kits includes a chassis and an adapter board AlphaBot2-PiZero. These two boards shall be assembled. No soldering is needed, only a few wiring to connect all the different sensor and attach them. To get started fast, several open source demo codes are available on the official website (waveshare).

### Sensors

Software

# Time plan

**04/03/19 – 11/03/19** : Definition of the context and the project

**11/03/19 – 18/03/19** : Divide the tasks between us and keep a complementarity

**18/03/19 – 25/03/19** :

Vincent – First practice and experimentation with the robot

Megan – Practice on a 3D modelling software in order to simulate a work environment

**25/03/19 – 01/04/19** :

Megan – Visit of Hylte, meeting with people from the emergency and fire department for making a social diagnosis, 3D Modelling improvement depending on the previous trip.

Vincent – Visit of Hylte to discuss about the ideas and future solution, test of the different functionalities on the robot, programming practice

**01/04/19 – 31/04/19** :

Megan – Work on the 3D model, work on the solutions in several specific case/scenario

Vincent – Adapt these scenarios to the robot, adjust them according to its capability