Image Analysis

NJRB2 | MVS9 | FA296

# Problem Description

The drone needs to identify at least two elements in order to complete its objective – the **Roomba** and the **Pen**. The Parrot AR Drone 2 platform has two cameras – a 360p downward-facing camera, and a 720p front-facing camera. These cameras can be used to identify both of these elements. We will need to use some form of image analysis to recognise these elements.

Our supervisor recommended that we use a QR code on top of the Roomba as a unique and environmentally-distinct marker. He also recommended that we use a simple shape marked out by tape on the floor for the pen.

# Use cases

These use cases help to identify the different uses for the image analysis component.

1. I am the drone and I need to identify the Roomba in order to be able to make decisions based on the Roomba’s location and direction of movement
2. I am the drone and I need to identify the Pen in order to be able to locate my the Roomba’s goal

# Milestones

These milestones help to identify different work items during sprint planning meetings.

1. Get Roomba pattern recognised under any circumstances
2. Get Roomba pattern exclusively (not recognising similar patterns) recognised under any circumstances
3. Get Roomba pattern exclusively recognised at different sizes
4. Get Roomba pattern exclusively recognised from different angles
5. Get Roomba pattern exclusively recognised at different sizes and angles
6. Get Roomba pattern exclusively recognised at different sizes and angles in varying lighting conditions
7. Get Pen pattern recognised using the same components as used for (6)
8. Get Roomba and Pen patterns recognised simultaneously
9. Connect the image analysis component to the drone’s camera

# Work Done

This section documents the dates on which work was completed. The information is published to Trello during development for ease of access.

2018-10-02 – Milestone 1 complete using templating