

---

# PROJECT ALTAIR

---

## Week 2

Hasin Mahtab Alvee

210042174

SWE'21

# Contents

<b>1</b>	<b>Python Programming and OpenCV</b>	<b>1</b>
1.1	Python Programming . . . . .	1
1.2	OpenCV . . . . .	2
<b>2</b>	<b>ROS Part</b>	<b>3</b>
2.1	Task 01 . . . . .	3
2.1.1	1. . . . .	3
2.1.2	2. . . . .	3
2.1.3	3. . . . .	3
<b>3</b>	<b>Theoretical Part</b>	<b>4</b>
3.1	Task 01 . . . . .	4
3.2	Task 02 . . . . .	5
3.3	Task 03 . . . . .	6

[Link for Project Altair Week 2 Git Repo](#)

[Link for ROS Packages Git Repo](#)

# 1 Python Programming and OpenCV

## 1.1 Python Programming

**Logical 1.** Progress Rover Instructions

## References

1. [Python Lists and Tuples](#)
2. [Dictionary in Python](#)

## 1.2 OpenCV

Logical 2. OpenCV to Extract data

## References

1. [NumPy Tutorial](#)
2. [OpenCV Tutorial](#)
3. [Detecting Multiple Colors](#)

## 2 ROS Part

### 2.1 Task 01

**Practical 1.** Turtle Sim

**2.1.1** 1.

**2.1.2** 2.

**2.1.3** 3.

## References

1. [Turtle BOT Guide](#)
2. [Bellman Ford Algorithm](#)
3. [Bellman Ford Algorithm](#)

## 3 Theoretical Part

### 3.1 Task 01

Theoretical 1. LORA

## References

1. [I2C Communication](#)

## 3.2 Task 02

Theoretical 2. SLAM

## References

1. [DC Motor with Encoder](#)
2. [Using Rotary Encoders with Arduino](#)

### 3.3 Task 03

**Theoretical 3.** Pixhawk

## References

1. [DC Motor with Encoder](#)
2. [Using Rotary Encoders with Arduino](#)