18/03/2020

19WSD001 Team Project – E.A.R.T.H

Objectives/ Aim (What?)

Aim: Accurately identify and sort rubbish from a beach, leaving it in a higher standard than when arriving.

Current Objectives (from highest to lowest priority)
- Grabbing trash by tri-track bucket
- Sorting trash by sorting rig
- Trash pickup order prioritization by tri-track
- Prioritizing trash at the boundary of the waterline

Stakeholders (Who?)

- Stakeholders for student product:
- Team members, PST and Loughborough University
- Companies and others interested in Open-Day

- Stakeholders for final product (real-world application):
- System operators, beach-cleanup company and suppliers
- People and wildlife on the beach
- Beach management, staff & shareholders
- Recycling businesses

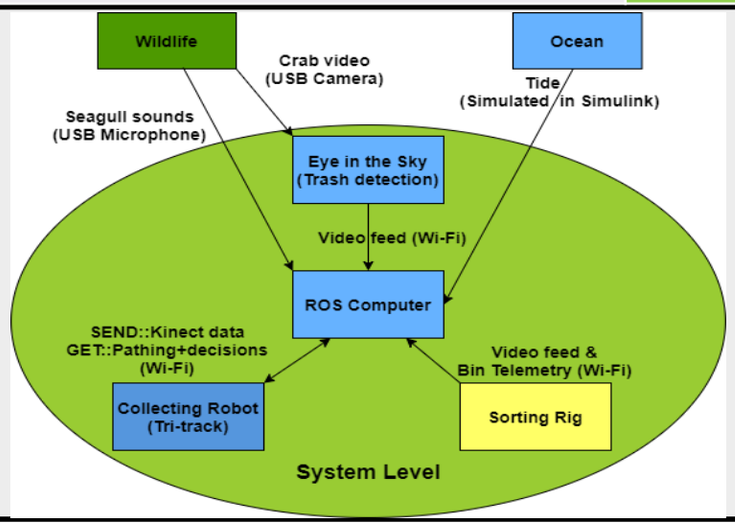
Strategy/ Plan (Why?)

- Integrate different implemented modules of the system using ROS
- Minimize unnecessary complexity to the system while maintaining functionality
- Agile testing approach while making changes to improve robustness

Currently working on: Finishing and integrating systems
Overall Target: Level 3 – Conditional Automation

Activities (How)

Actions	State
Pathing – map of environment	
Pathing – decision of route to destination	
Pathing – decision of efficient order to collect trash	
Bin detection	
Identifying trash – Object recognition	
Sorting trash – Grabbing object	
Sorting trash – Placing in appropriate bin	
Detecting, categorizing & avoiding crabs	
Wildlife(seagull) detection & alerting user	
Attempting to get trash at the waterline boundary	
Integration between ROS system & sorting rig	
Telemetry – UI Design	
Telemetry – Data acquisition & Camera feed	
Telemetry – Camera feed	



Budget statement

- **Remaining Budget: ~ £ 165**
- **Spent: ~ £ 335**
- Budget Plan please see link: https://bit.ly/2ZYQfXB

Mission phase completion

Phase	Completion & autonomy
Enter and navigate the beach area using intelligent route finding	2
Identify recycling bins from optically coded sensors (at least 3 different types)	3
Identify and sort different types of rubbish	3
Identify and characterize different crab types and the routes taken	3
Actively avoid interfering with the crabs	4
Identify and alert operators about other wildlife	4
Identify waterline and actively avoid or mitigate against the incoming tide	1

Key issues and risks

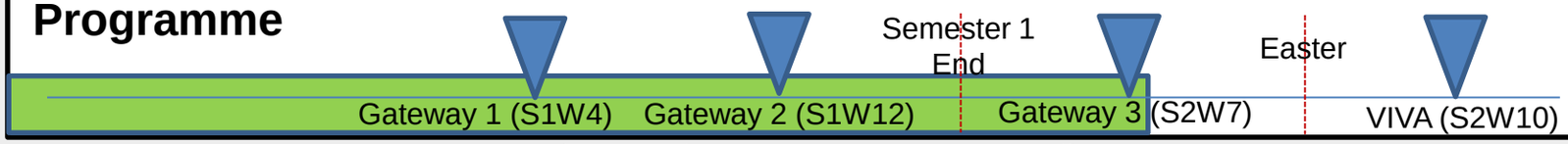
- *Medium risk & high impact*:
- Infection due to Coronavirus outbreak
  [Take appropriate safety precautions]
- Supply chain compromised due to deadline and Covid-19
  [Hardware failures mitigated by PST & team's contingency stock]
- Logistics of team members for integration over Easter break
  [Tasks will be assigned beforehand to combat system constraints]

Team information

E.A.R.T.H

Github:
https://github.com/orgs/lboroWMEME-19WSD001/teams/e-a-r-t-h
E-portfolio:
https://teamearth1.wordpress.com/

Programme



Key

Key	
Completed	
In progress	
Not Started	