Project Updates: 17-11-2023

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Introduction

- **Supervision Meetings:**
  Consists of a listing in table format of the supervision meetings that have occurred since the last update, including dates, attendees, and a brief description of discussions and actionable items.

- **Actionable Items Recap:**
  Consists of a listing in table format of the actionable items from the previous week, briefly discussing the progress made and pending tasks.

- **Additional Project Updates:**
  Consists of updates that weren't 'actionable items' from the previous week, such as brief overviews of experiments conducted, data collected, and research findings.

- **Next Week's Agenda:**
  Consists of a listing in table format of the actionable items to complete before the next weekly update, including task descriptions, rough timelines, and success metrics.

- **Comments & Concerns:**
  Consists of a brief analysis of comments or observations about other aspects of the project, such as facilities, work environment, and any outside interest in the project. Furthermore, outlines any concerns about the project.

1   17-11-2023

1.1   Supervision Meetings

Date	Agenda	Actionable Items	Attendees
15-11-2023	- Findings on Python performance issues research. - Discussed objectives for detecting backscatter. - Discussed objectives for predicting backscatter motion. - Discussed timing complexities for synchronising find backscatter-project holes-predict next location cycle. - Future work could be to stitch images of the seabed together to produce 'panorama'.	- Research simple blob detection algorithm. - Research object tracking algorithms, starting with linear moving on to more advanced algorithms later.	- Sidharth Shanmugam - Benjamin Henson

1.2 Actionable Items Recap

Actionable Item	Progress Report	Pending Tasks
• Experiment with hypervisors	• Underwater GoPro footage with backscatter has been received. • Existing code has been retrieved, had to extract the files from the Pi's SD card. • Will be shifting this task for later so that I can produce software beforehand.	• *No pending tasks.*
• Gather some digital image processing literature	• I have gathered two textbooks for digital image processing. • Didn't get a chance to read through them yet, but will be doing so for next week.	• Log the different algorithms and complexities for each.
• Experiment with RPi and C programming	• I've researched that C programming would be quite difficult for this task. • Instead of C I could use C++. • A lot of the online resources suggested prototyping in Python, then translating to C++ for production.	• Set up C++ workflow to develop and deploy to Raspberry Pi.

1.3 Additional Project Updates

Additional Update	Description
No additional updates.	-

1.4 Next Week's Agenda

Actionable Item	Description	Success Metrics	Target
Start researching on blob detection algorithms	• Use the literature for this.	• Make notes in project journal.	Friday
Gather literature for object tracking/predicting movement	• Starting with linear interpolation.	• Make notes in project journal.	Friday
Experiment with blob detection algorithms	• Extract individual frames from the underwater GoPro footage. • Or create own backscatter assets (black/grey background with white dots). • Using Python and OpenCV, experiment with blob detection algorithms.	• Log progress in the Project Journal, maybe even store code in a 'spike' repository on Github.	Friday

1.5 Comments & Concerns

No comments or concerns at the moment.