Project Updates: 24-11-2023

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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 24-11-2023

1.1 Supervision Meetings

Date	Agenda	Actionable Items	Attendees
24-11-2023	• Overview of the gathered literature for research and review. • Overview of the Python script with OpenCV simple blob detection.	• Expand research and make notes. • Think about real-time aspects along side the research. • Work on automating the fine-tuning of thresholds in the Python script with histograms.	• Sidharth Shanmugam • Benjamin Henson • Paul Mitchell

1.2 Actionable Items Recap

Actionable Item	Progress Report	Pending Tasks
• Start researching on blob detection algorithms	• I have listed a few academic papers related to underwater bubble detection, mostly from IEEE. • The two textbooks that I'd checked out of the library don't relate much to the project, I will keep them just in case for supplementary information. • I've struggled to find textbooks that goes into detail on these aspects.	• I plan to read the papers, making notes in the Project Journals on each. • I will read any referenced papers/textbooks that are related to the project.
• Gather literature for object tracking/predicting movement	• I have gathered some papers on underwater object tracking.	• I will be making notes, and expanding my literature collection by exploring the referenced papers. • I am prioritising research on blob detection at the moment.
• Experiment with blob detection algorithms	• I have made some prototype code to help with my blob detection research in Python using OpenCV. • Using various filters, I have been successful in detecting most of the bubbles in the test image inputs. • All progress on this has been logged in the Project Journal.	• Fine tune blob detection parameters and test with non-bubble backscatter. • Maybe even apply some of the algorithms discussed in the research papers.

1.3 Additional Project Updates

Additional Update	Description
No additional updates.	-

1.4 Next Week's Agenda

Actionable Item	Description	Success Metrics	Target
Expand research and make notes.	• Read and make notes of currently gathered papers. • Expand literature research by reading related cited work. • Think about how real-time can be achieved.	• Make notes in project journal.	Friday
Research histograms	• Research methods to automate the fine-tuning of the currently hard-coded values for the thresholding.	• Log progress in the Project Journal.	Friday

1.5 Comments & Concerns

No comments or concerns at the moment.