

Weekly Report N°5 for

School year 2023-2024

RubbleScout,
"Navigating Chaos, Saving Lives"

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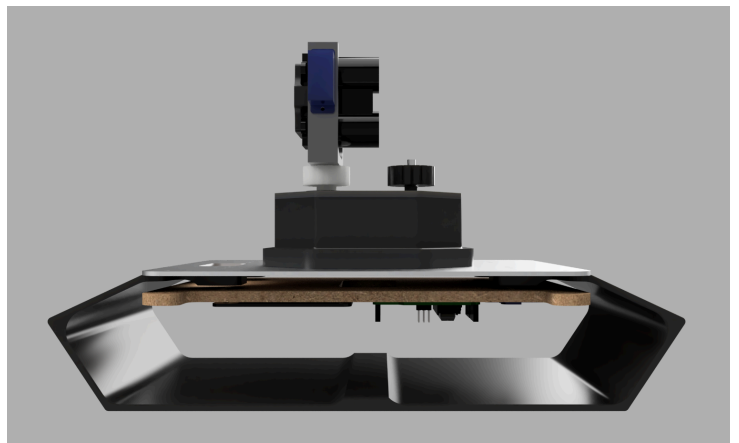
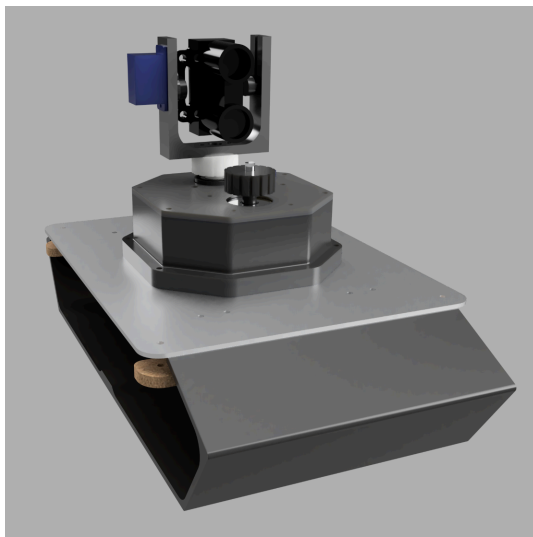
Objectives:

- Design a prototype for the 3D LiDAR scanning module on a CAD Software (Here using Fusion 360).
- Conduct a mobility test using Bluetooth protocol with a smartphone.

Activities Undertaken:

1. 3D LiDAR Scanning Module Design:

- Utilized Autodesk Fusion 360 to design the first prototype of the 3D LiDAR scanning module.
- Focused on creating a compact and efficient design that integrates smoothly with RubbleScout's chassis.
- Ensured that the module provides optimal range and accuracy for the LiDAR sensor, which is crucial for the robot's navigational capabilities in search and rescue missions.



2. Mobility Test Using Bluetooth Protocol:

- Conducted a mobility test by interfacing RubbleScout with a smartphone via Bluetooth.
- This test aimed to assess the robot's responsiveness and control accuracy when operated remotely.
- Evaluated the ease of connection, command execution, and overall stability of the Bluetooth communication.

A short video of this test can be found [\[here\]](#).

Results and Observations:

- **LiDAR Module Design:** The initial design of the LiDAR module was successful, with a focus on functionality and integration. Further refinements will be considered based on subsequent testing and feedback.
- **Bluetooth Mobility Test:** The test demonstrated promising results in terms of connectivity and control. The robot responded effectively to commands from the smartphone, indicating that Bluetooth can be a viable option for remote operation.

Next Steps:

- Proceed with the fabrication of the 3D LiDAR scanning module prototype.
- Conduct comprehensive tests on the LiDAR module to ensure its functionality and reliability.
- Explore further enhancements in remote control capabilities, possibly integrating more advanced features or alternative communication protocols.

This session was pivotal in progressing from design to practical application, especially in the development of the LiDAR module. The success of the Bluetooth mobility test also opens doors for more advanced remote operation techniques, which will be crucial in real-world search and rescue scenarios.