

Weekly Report N°18 for

School year 2023-2024

RubbleScout,
"Navigating Chaos, Saving Lives"

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Objectives:

- Test fit the newly printed 3D parts for the RubbleScout robot.
- Identify necessary adjustments to the parts for enhanced functionality.

Activities Undertaken:

1. Test Fitting of 3D Printed Parts:

- Assembled the newly printed 3D components, including mounts for the NVIDIA Jetson Nano, the camera, and the lamp, along with the battery protection and magnetic covers.

- Evaluated the fit and alignment of each part within the robot's chassis.

2. Identification of Adjustments:

- Noted the need for modifications such as:
- Drilling proper holes for antenna integration to improve communication range.

Results and Observations:

- **Fit and Function:** Most parts fit well, but a few require adjustments for optimal functionality and integration.

- **Cooling Requirements:** The need for additional cooling for the lamp was identified during the test, prompting the decision to add a 40mm fan to this component.

Next Steps:

- **CAD Adjustments:** Update the CAD designs to incorporate the identified modifications, such as antenna holes and correct fan sizes.

- **Reprint and Retest:** Print the modified parts and conduct another test fit session to ensure all adjustments meet the project's requirements

- **Develop Control Software:** Begin coding a comprehensive control interface that allows user interaction with all robot functionalities, focusing initially on manual controls.

- **Plan for Autonomous Functionality:** Outline the steps necessary to implement autonomous operations, which will likely involve integrating sensor data with decision-making algorithms.

Reflections:

This session was crucial for validating the physical aspects of the latest design updates. The insights gained from test fitting are invaluable, directing specific modifications that will enhance the overall functionality and reliability of RubbleScout. Looking ahead, the focus will shift towards developing a user-friendly control interface, which will be a significant step towards achieving a fully operational prototype. The subsequent challenge will be to tackle the autonomous capabilities of the robot, marking a pivotal phase in the project that will test the integration of hardware and software to achieve independent operation.