

Weekly Report N°12 for

School year 2023-2024

RubbleScout,
"Navigating Chaos, Saving Lives"

Student:
Lorenz CAZAUBON

Supervisor:
Pascal MASSON

Objectives:

- Design and 3D print a protective component for the battery situated on the underside of the robot.
- Enhance cable management through strategic rewiring.
- Advance the transition from the Arduino framework to ESP-IDF for the project's coding environment.

Activities Undertaken:

1. Battery Protection Design:

- Engineered and 3D printed a custom part tailored to secure and safeguard the battery, crucial for the robot's power supply, while ensuring it fits seamlessly into the "belly" of RubbleScout.

2. Cable Management Optimization:

- Reworked and tidied up the wiring to enhance the organization and functionality of the internal components, focusing on creating a streamlined and efficient layout that facilitates maintenance and reduces the risk of damage.

3. Framework Transition Progress:

- Made substantial strides in migrating the codebase from the Arduino framework to the more robust and feature-rich ESP-IDF, setting a solid foundation for advanced development and operational capabilities.

Results and Observations:

- **Battery Component:** The newly designed protective part for the battery has been successfully integrated, providing essential protection and stability to the power source, thus enhancing the overall durability of RubbleScout.
- **Improved Cable Organization:** The restructured cabling has not only improved the internal aesthetics but also the robot's operational reliability, ensuring clear and safe connections between components.
- **Framework Migration:** The ongoing transition to ESP-IDF is proving to be promising, with early indications suggesting a potential for increased efficiency, better resource management, and greater flexibility in programming.

Next Steps:

- **Testing and Validation:** Conduct thorough tests to assess the effectiveness of the new battery protection and the reorganized cabling, ensuring they meet the project's standards for safety and functionality.
- **Continued ESP-IDF Integration:** Persist with the diligent work of adapting the project's code to the ESP-IDF environment, focusing on leveraging its advanced features to enhance RubbleScout's performance.
- **Documentation and Review:** Document the changes and improvements made during this session for future reference and conduct a review to identify any areas needing further attention or optimization.

Reflections:

This session was instrumental in fortifying RubbleScout's physical and technical infrastructure. The addition of a custom-designed battery protection component and the optimization of cable management significantly contribute to the robot's resilience and operational efficiency. Meanwhile, the transition to ESP-IDF is a strategic move toward unlocking new potentials in programming flexibility and performance enhancement. These advancements are crucial steps toward realizing RubbleScout's mission of navigating chaos and saving lives more effectively.