Project Lapis Job Safety Analysis

The safety checklist

Checklist during construction	Checked
Long hair tied back	
Gloves worn if handling adhesives	
Power sources moved away from the pool	
Area properly ventilated	
Safety goggles on	
Adult supervision present if using power tools	
Area is free of tripping hazards (wires, PVC pipes, etc.)	
Buddy system activated if using power tools	
Parts to be drilled/sawed are properly secured	
Power tool not carried by its cord	
Area properly ventilated	

Checklist before ROV is deployed	Checked
All modules and wires are securely fasted to the ROV	
All wires are contained within the frame	
Tether is properly plugged in	
All motors are working	
All cameras are working	
ROV securely connected to the power source	
Fuse is not broken	
All boxes are closed, sealed, and water proved	

Checklist during operation of the ROV	Checked
ROV handled by the one and only designated person	
At least one person is watching the ROV	
Only the pilot is handling the ROV maneuvering	
Only one person is operating the claw	
Control center is not crowded	

Catalyst's safety philosophy is to ensure the protection and safety of all members and facilities. At the beginning of the construction, company members received instructions from mentors on how to use tools and other equipment in a manner that ensures their own safety and that of others around them. They were also periodically reminded as time went on in order to really imbue a culture of safety within the workspace.

All members were required to work in pairs when using certain tools or equipment were used like the soldering iron, cutting iron and the drill. The purpose of this is so that team members are not only able to help each other keep the piece they are working on steady, but they can also help each other in case of an emergency. Members are also not allowed to operate power tools without adult supervision in order to minimize the likelihood of an accident. We also require members to wear safety googles when using any hazardous equipment such as a power drill or an angle grinder. In addition to that, whenever testing the ROV, the power source is always asked to be moved away from the pool to minimize likelihood of accident.

Catalyst also requires certain safety precautions to ensure proper setup and prevent emergencies. These include: keeping all foods and drinks away from electronics; ventilating the area when working with epoxy, solder, or silicon-based adhesive; making sure the power is connected correctly; tying long hair back; ensuring that wires and cords are properly put away to prevent tripping; and advising others in the room when certain equipments will be used. The workspace is also cleared of any obstacles to prevent the tool or its wire from being snagged on something and potentially causing an accident.

Lapis has been designed with safety features as well to ensure that all operators and the surrounding environment are protected. All wires have been waterproofed and electrical cases have been sealed shut to prevent leakage and damages. The chassis itself is also used as a protective measure for the entire robot so that all things within are safe. Thanks to the 90- degree connectors at its vertices, the chassis does not pose any external threat in transit. Any module that juts out of the ROV is removed while in transit as well.