



TEAM SCREWDRIVERS

NetraROV

**JOB SAFETY ANALYSIS
2019**

Staff Members:

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Development of ROV

Operation	Task	Potential Hazards	Risk Mitigation method(s)	Responsible
Developing Circuit Board	Soldering	Skin Burn	<ol style="list-style-type: none"> 1. Use soldering iron only under expert supervision. 2. Wear gloves while using the soldering iron. 3. Wear closed footwear like shoes or boots. 4. Turn off soldering iron when not in use. 5. Place soldering iron on its holder after each use to avoid unwanted touch with iron, which can cause skin burn. 	Sign
		Fume Inhalation	<ol style="list-style-type: none"> 1. Wear respirators while soldering to avoid inhaling fumes. 2. Soldering should be done only in a well-ventilated area. This not only prevents inhalation but also suffocation. 	
		Burning Wires	<ol style="list-style-type: none"> 1. Turn off soldering iron when not in use. 2. Place soldering iron on its holder after each use to avoid unwanted touch with iron. It could burn wires, which can lead to further complications. 	
	Water Proofing	Skin Damage	<ol style="list-style-type: none"> 1. Wear protective gloves while using epoxy. 	
		Respiratory Irritation	<ol style="list-style-type: none"> 1. Epoxy odor can cause temporary respiratory irritation, to avoid that one must use respirators and work in a well-ventilated area. 	

**HEAVY/
POWERTOOLS
USE**

- 1. USE HEAVY/POWER TOOLS ONLY UNDER EXPERT SUPERVISION**
- 2. Do not use power tools in explosive atmosphere**
- 3. Three pronged cords must be plugged into a properly grounded installed outlet**
- 4. The wire gauge and the length of the cord must be able to handle the amps of the tool**
- 5. Turn off the tool immediately after use and keep the tool at a safe distance**
- 6. Always wear Electrical Hazards (EH) rated footwear while operating power tools**

Operation	Task	Potential Hazards	Risk Mitigation Method(s)	Responsible
Heavy/Power tools use	Mechanical Work	Respiratory Irritation	<ol style="list-style-type: none"> 1. Wear respirators to avoid inhaling dust, smoke etc. 	Sign
		Cuts and bruises	<ol style="list-style-type: none"> 1. Wear mechanical gloves when using power tools. 2. Do not keep wires lying around on the floor. This prevents tripping. 3. Use tools at half an arms distance. 4. Wear safety goggles to prevent debris damaging the eyes. 5. Avoid touching freshly cut or drilled pieces. 	
		Hearing damage	<ol style="list-style-type: none"> 1. Power tools produce sound levels high enough to damage hearing, to prevent hearing loss always wear earplugs or muffs. 	
		Saw injury	<ol style="list-style-type: none"> 1. Check condition of the machine/ tool before use. 2. Maintain safe distance from moving blades or drilling bits Turn off machine immediately after use. 3. Touch blades or bits only after they have completely stopped. 	

Required Training:

1. Use of Soldering Iron.
2. Use of Heavy / Power tools.
3. Using epoxy

Required Protective Equipment:

1. Protective Gloves
2. Respirators
3. Safety Goggles
4. Earplugs or muffs

Note: Always keep a Medical Kit handy to address any injury.

Post Development**Required Training:**

1. Transporting the ROV
2. Assembling the ROV
3. Setting up wiring and voltage
4. Launching the ROV
5. Retrieving the ROV

Required Protective Equipment:

1. Close-toed shoes while transporting the ROV
2. Non- Slip near Pool
3. Safety Glasses
4. Protective Gloves
5. Life Jacket

Stage	Potential Hazards	Risk Mitigation Method(s)	Responsible
Transportation	Heavy Load Strain	1. While transporting the ROV, do not carry the ROV alone to avoid back strain	Sign
	Mishandling	1. Handle the ROV with care. 2. Transport the ROV on a transportation cart.	
Pre-Launch/ Assembling the ROV	Hand Injury	1. Use safety certified hand-holds only 2. Keep your hands at a safe distance from the thruster to avoid injury	Sign
	Eye Damage	1. Wear safety glasses before operating the ROV and entering the pool.	
	Slipping	1. Wear non-slip or closed toed shoes near the pool to avoid slipping while carrying the ROV.	
	Overvoltage	1. Set appropriate operating voltage.	
ROV Demo (Dry Run)	ROV body damage	1. Keep the ROV on a table/stand to prevent physical damage to the ROV body.	Sign
	Electrical Connections	1. Check all the connections, voltage etc. before switching ON the ROV to avoid any electrical damage.	

Stage	Potential Hazards	Risk Mitigation Method(s)	Responsible
Launch	Electrocution	<ol style="list-style-type: none"> 1. Before placing the ROV in the pool, ensure all the connections are switched off. 2. Ensure all the connections are properly wired and dry. 3. In case of leak/ short circuit, immediately switch off the power supply. 	Sign
	Finger Damage	<ol style="list-style-type: none"> 1. Use safety certified hand-holds only. 2. Keep your fingers at a safe distance from the thrusters to avoid injury. 	
	Drowning	Wear life jacket before entering the pool.	
Retrieval	Hand Injury	Before retrieving the ROV, ensure the ROV is switched off to avoid injury caused by touching thrusters, etc.	Sign
	Heavy Load Strain	<ol style="list-style-type: none"> 1. Avoid Lifting the ROV alone. 2. Lift the ROV with a proper body posture to avoid muscle or back strain due to heavy load. 	