Team #:	P20250	Team Name:	Tiger Sharks							
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	Solution #									
Sub-Function	1	2	3	4	5	6	7	8	9	10
Hold internal subsystems together mechanically	Glue	Mechanical Mounting Plates/Frame	Fill with Foam	epoxy	zipties					
Protect it from environment	Hard metal shell	Soft, flexible exterior	individual metal canisters	hard plastic shell	fiberglass shell	3D printed case	Plastic Bag	glass shell	PVC frame	Large PVC tube
Sense bottom	Physical Probe	Sonar	Laser rangefinder	Beacons	Second Camera	pressure sensor on ROV	shorten tether to never hit bottom			
Stream Video	GoPro	water-proof camera	camera in waterproof case	mechanism to physically operate camera	camera not accessible to user					
Launch and Retrieval System	tether (rope)	tether (chain)	winch	pile of tether on boat floor	Drone Release System	tether of electrical cabling and shielding	mini fork lift			
Relay Information	Send information by ethernet interface	Send information wirelessly	Modulate power off ROV	Fiber Optic Cable						
collect user input	Joystick	iPad	Steering wheel	Laptop/ Keyboard	Phone	xbox controller	Physical Buttons			
Maintain heading	tether both ends	central compartment	PVC frame	oval shaped	distribute weight	thrusters in center	IMU Feedback Control System			
Move in horizontal	Fins for forward propulsion	impellers	propellers	Corkscrew/Caterpillar drive	bottom crawler	thrusters in center	motor	pneumatic system	hydraulic system	Dragged by boat
Move in vertical	Propellers/thrusters	Manipulate tether	variable ballast tank	foam	buoyancy compensator (SCUBA)	adjustable weights	Submarine water system	pulley and anchor system	Fins	
Move in Yaw	Multiple propellers/thrusters	Rudder	Manipulate tether	Vector thrusters						
move in pitch	Fins for pitch control	Multiple ballast pumps/tanks	Multiple adjustable weights	Multiple thrusters	weights on linear actuator					
provide power	From the boat Engine Alternator	Batteries on board the ROV (Lipo)	Stand alone power source on boat	solar power station	stored PE (from rising/falling)	Chemical Energy	Hand Crank	pedal-operated		
collect local positioning data	surface GPS	drop passive/responsive beacons	Monocular SLAM	IMU Data Logging	Cell Tower Triangulation					
collect temp data	temp sensor	thermocouple	thermometer	thermal imaging	mood ring					
collect pressure data	depth sensor	pressure sensor	calculate depth based on position to launch platform							
safely transport ROV	de-constructable ROV	handles on ROV	wheels on ROV	put on cart	Case For ROV	Drone	Seperate Tow Craft			
react to fault	Deploy Inflation Device	Halt and Catch Fire	automatically surfaces	Notify User On HUD	blink light on ROV	exert noise	Status Light On Tether	Status Light In Bobber	Detach tether	Winch
control movement system	Microcontroller with power MOSFETs	smart controller (gate driver)	Modulate power off ROV							
provide light	Provide Light From LEDs onboard ROV	halogen lightbulbs	flares	fluorescent glowsticks	Extraspectral camera	incandescent bulbs				
create HUD visual	Compile Data collected from sensors and live stream and construct live feed with data drawn over frames.	Use out of box solution	Manual HUD setup							
Collect Still Image	Screen Capture from live video	Seperate Camera from still image capture								