Instructions:	Indicate each of the processes of your AGV and the requirements for that process (ex: driving forward, left, right, sensor detections: optical and distance, claw movements, malfunctions caused by low battery, killswitch. There is nothing to fill out on the vertical writing. Use as much detail as possible to describe each section.														
Item: AGV															
Design Lead Engineers: Matthew Jeide, Preston Maxwell, Samuel Webster														FMEA Number:	23-24
Model Year/ AGV: 2025														Prepared by:	
Core Team: Matthew Jeide, Preston Maxwell, Samuel Webster														FMEA Date(Orig.)	

FMEA
Failure Mode & Effects Analysis

Potential
Failure Mode and Effects Analysis
(Process FMEA)

Process Step/ Function	Requirements	Potential Failure Mode	Potential Effects of Failure	SEV	CLASS	Potential Causes/ Mechanisms of Failure	Current Processes Control Prevention	OCC	Current Process Control Detection	DET	RPN	Recommended Actions	Responsibility & Target Completion Date	Actions Taken
Driving Forward	The vision Sensor must detect blue.	Detects the blue path as anything but blue OR the robot is no longer on the path.	Does not drive on the designated path.			Light polution. Sensor location.	Test the sensor in various location until it detect the colors clearly.		Hue on the sensor is set by the programmer as VEX's preset BLUE.			Test the sensors at the factory where they will be used.	Completion date 9/23/25.	Turn on the optical sensor's light to increase accuracy.
Adjusting Orientation	The vision Sensor must detect yellow or red.	Detects the paths as the incorrect hue/color OR the robot is no longer on the path.	Does not drive on the designated path.			Light polution. Sensor location.	Test the sensor in various location until it detect the colors clearly.		Hue on the sensor is set by the programmer as VEX's preset RED & YELLOW.			Test the sensors at the factory where they will be used.	Completion date 9/23/25.	Turn on the optical sensor's light to increase accuracy.
Procurement of Objects	The proximity Sensor must appropriately detect the objects on the path. The robot must halt its path-following processes. The claw must rotate to a correct degree to grab the object.	Proximity sensor failure or malfunction, the robot does not halt, or the claw doesn't rotate or rotates to an incorrect angle and can't pick the objects up.	Does not procure objects.			Mechanical flaws in the rotation system, coding control is not effectively handled, and or an obscurement in front of the proximity sensor.	Meticulous testing of the rotation system, proximity sensor, and coding.		If an object is detected within range of the proximity sensor, the robot halts and rotates its claw to pick up the object.			Test the rotation system at the factory and ensure accurate proximity sensors.	Completion date 9/23/25.	Clear obstructions in the build from the proximity sensor