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P21068 – Robotic Art Assist

Individual Functional Decomposition

Subtract & Operate

Identify at least one existing device that can be used to subtract and operate: <http://www.line-us.com/>

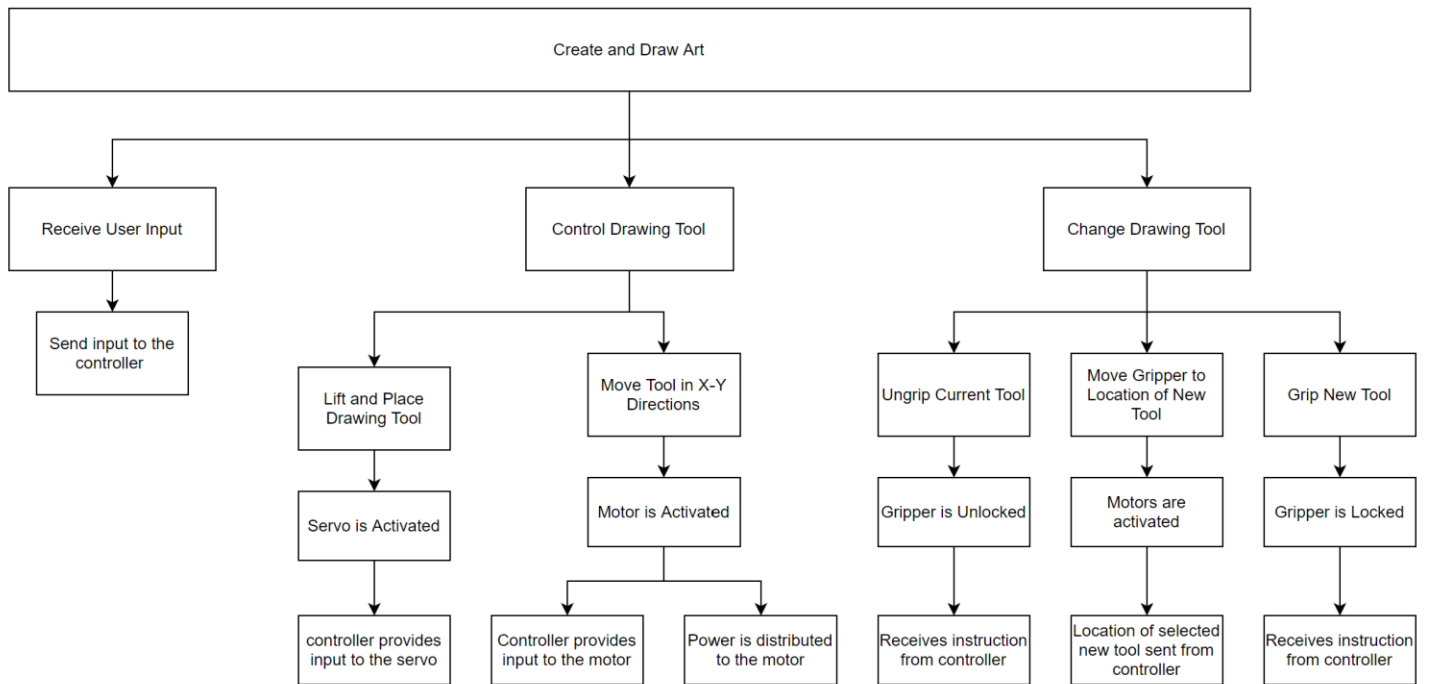
Make a list of the 5-10 components of your benchmark device. Then subtract and operate to identify the function of each component or subsystem

Part #	Component	Function
1	iPad App	Gains user input from the user drawing on the screen
2	Connection Cable	Allows for the transmission of data from the iPad App to the robot
3	Electrical Controller	Receives transmitted data and determines instructions, controlling the movement of the pen
4	Motors/servos	Move the arms based on information from the controller
5	Robot Casing	Protects the electronics from outside forces
6	Robotic Arms	Hold and move the pen based on movement from motors/servos. Ensure the pen is held at the correct angle and height
7	Pen	Is held by the arms and actually draws on the physical paper

Areas for Creative Brainstorming

- Gripper – how the tool is held and changed by the device
- Arms – the feature that is responsible for the lateral and vertical movement of the gripper
- Arm Movement – how the arm moves and draws
- User Input – how the device receives user input

Function Tree



Transformation Diagram

