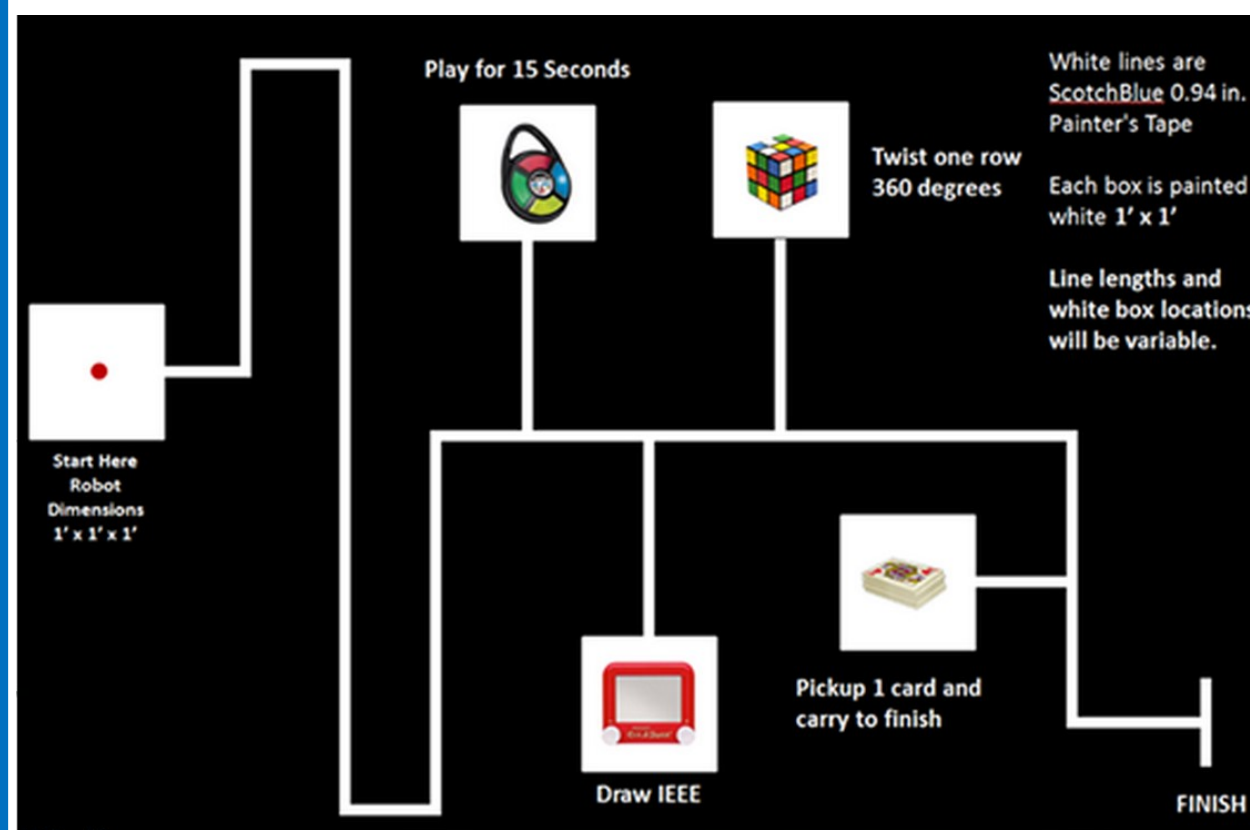# SoutheastCon 1B

BACKGROUND/INFO

Robot must autonomously follow a white line course and complete the following tasks:

- Detect a red LED turning off
- Play Simon Says for 15 seconds
- Write IEEE on Etch-A-Sketch
- Turn a face of a Rubik's cube 180 degrees
- Pick up a playing card from a deck & cross finish

TEAM MEMBERS

Ivan Vargas: EE, Equipment Technician
- Webpage & Programming Editor, 3D Models

Lorenzo Smith: EE, Project Manager
- Power & Wire Management, Chassis

Chelsea Ogle: EE , Secretary
- Drive System, MATLAB, Signal Processing

Louis Cooper: EE, Treasurer, Robot Mechanic
- Robot Technician, Game Specialist

Evan Marshall: CE, Programming Manager
- Sensors, Chassis

TOP-LEVEL SYSTEM DIAGRAM
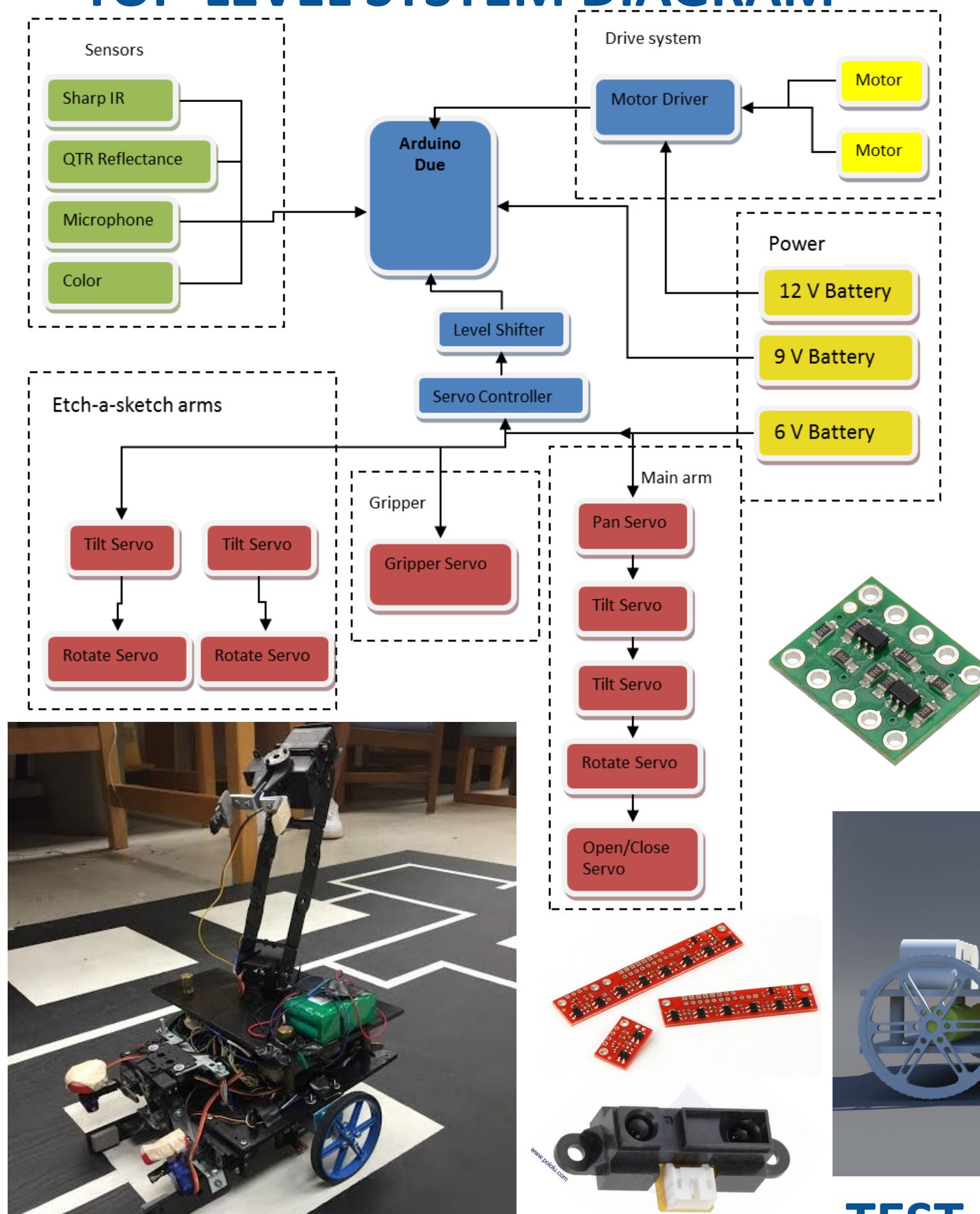
SCHEDULE SUMMARY

Tasks	Completed by
Drive System	1/17
Chassis, Rubik's Cube	2/10
Playing Card	2/20
Distance Sensing, LED Activation	2/25
Etch-A-Sketch	3/9
Simon, Line Following	3/20

DESIGN SPCIFICATIONS

System	Components
Drive System	2 DC Brushed Motors, two 90mm Wheels with Silicone Tires
Arms/Grippers	Main Arm, Chassis Gripper, Etch-A-Sketch Grippers, Level Shifter, [Arms/Grippers custom made of Standard and Continuous Rotation Servos with Aluminum Brackets]
Sensors	QTR 8RC Sensors (line following), Analog Distance Sensor, Electret Microphone Amplifier
Power	6V, 9V, 12V NiMH Rechargeable Batteries
Chassis	2 Layers of High-density Polyethylene, Brass Columns
MCU/Integration	Arduino Due, Maestro Servo Controller, MC33926 Motor Driver Shield
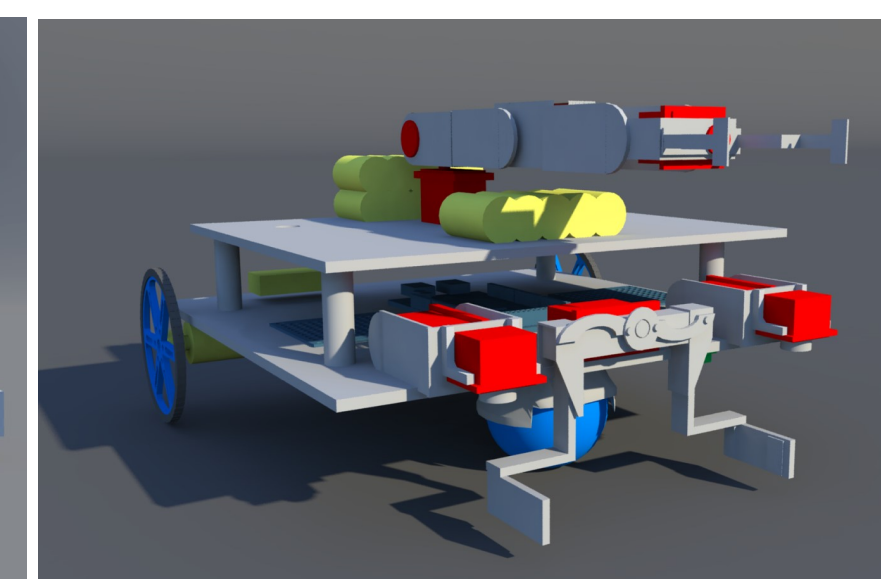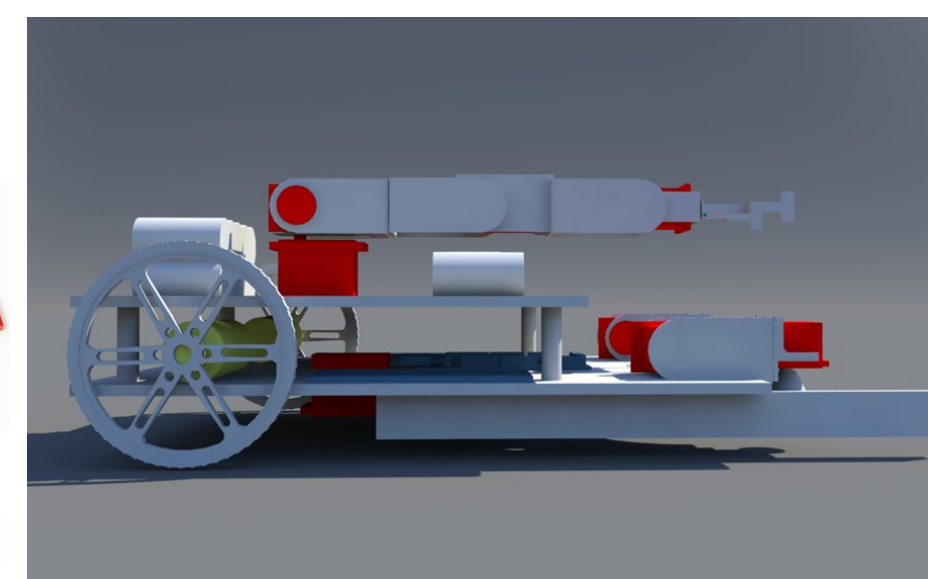
TEST PLAN SUMMARY

TEST	RESULT
Demo code	Pass
Line following	Pass
Detect start LED	Pass
Turn Rubik's cube face 180°	Pass
Write IEEE on Etch-A-Sketch	Pass
Pick up playing card	Pass
Press all colors on Simon	Pass

BUDGET ESTIMATE

EXPENSES	PRICE
Microcontroller	$80.00
Sensors	$42.05
Wheels and Motors	$118.89
Chassis	$22.69
Arms, Grippers, Servos	$172.24
Batteries and Charger	$60.40
Miscellaneous	$125
Total Cost of Project	**$621.26**
Budget Provided	**$750.00**