Hello!,

Welcome to the Summer STEM 2020 Robotics Crash Course! During this course we will be exploring the engineering fundamentals needed to have a working mobile robotic system. The class will start with learning “git” and GitHub, we will then dive into understanding electronic circuit theory. Next will be learning the Arduino language (C++) and it’s syntax. Once these engineering fundamentals are explored we can start applying this new knowledge to do things like read data from sensors and control actuators. With these two tasks (reading sensors and controlling actuators) we can start to see the complexities that arise when trying to create a robust robotic system to solve various problems. Eventually our robot will be able to detect obstacles and avoid them to continue driving forward.

To access course materials please go to: https://github.com/mgiglia92/Robotics-Crash-Course. Feel free to click through the directories if you’re curious.

Inside this package you will find the following components which will be used to assemble your robot (Turn paper to other side). Some notes about the parts and naming convention in the following table:

- COTS: Commercial off-the-shelf
- MPU6050 and cover: This sensor is already attached to your frame along with the MPU6050 cover
- M3-XXmm: This means the fastener type is M3 which means 3mm diameter. XX is the length of the fastener

Robot Kit Components				
Category	**Item**	**Qty**	**Manufacturing Process**	**Check**
Tools	Phillips Head Screwdriver	1	COTS	
Fasteners	M2.2-9.5mm self tapping	3	COTS	
Fasteners	M3-12mm	10	COTS	
Fasteners	M3-16mm	8	COTS	
Fasteners	M3-30mm	8	COTS	
Fasteners	M3-Nuts	28	COTS	
Fasteners	M3-Lock Washer	28	COTS	
Fasteners	M3-Washer	28	COTS	
Structure	M3 Spacers (6mm length)	6	3D printed	
Tools	M3 Hex Nut Key	1	3D printed	
Protection	ICSP Pin Cover	1	3D printed	
Structure	Plastic Ball caster 1" diam	1	COTS	
Structure	Motor Mounting Bracket	2	3D printed	
Structure	Ball Caster Spacer	1	3D printed	
Electronics	Accelerometer/Gyroscope (MPU6050)	1	COTS	
Electronics	Ultrasonic Distance Sensor (HC-SR04)	1	COTS	
Structure	Ultrasonic Distance Sensor Bracket	1	3D printed	
Structure	MPU6050 Cover	1	3D printed	
Electronics	Motor Controller L298N breakout	1	COTS	
Structure	80mm Wheel	2	COTS	
Electronics	Motor	2	COTS	
Electronics	Mini Servo Motor	1	COTS	
Electronics	Arduino UNO	1	COTS	
Electronics	Jumper Wires	16	COTS	
Electronics	9V battery	2	COTS	
Electronics	9V battery connector	1	COTS	
Electronics	Red Solid core wire	1	COTS	
Electronics	Black Solid core wire	1	COTS	
Electronics	Sensor Shield	1	COTS	
Structure	9V Battery Mount	1	3D printed	
Structure	Frame	1	Laser Cut	