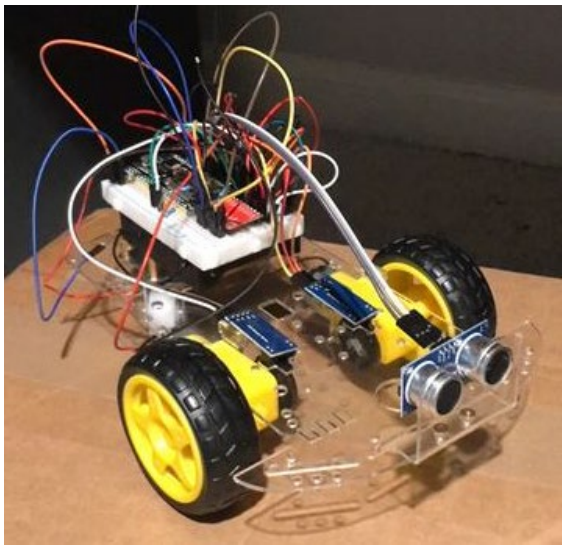
STEM Camp Overview

In this STEM camp you will construct and program your own robot car seen below:



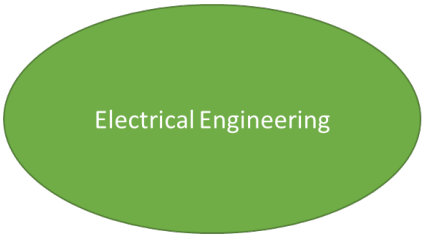
Along the way you will learn about these topics:

- Soldering
- Breadboards
- Jumper wires
- Electricity
- LEDs
- Microcontrollers
- GPIO Programming
- Ultrasonic sensors
- DC Motors
- Motor control
- Tachometers (optocouplers)
- Transistor-Transistor Logic (TTL)
- Networking
- Wi-Fi

The topics are broken out into these modules:

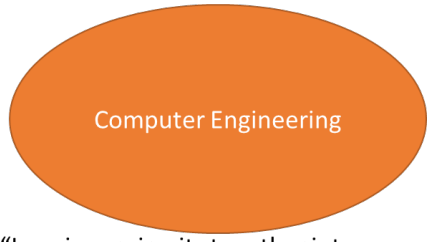
1. Constructing the robot
2. Soldering the power switch
3. Working with LEDs
4. Blink an LED with the ESP32
5. Power with USB vs power with external power
6. Working with DC motors
7. Working with DC motor drivers
8. Working with networking

With what I learn in this STEM camp, what type of engineer or scientist could I be?



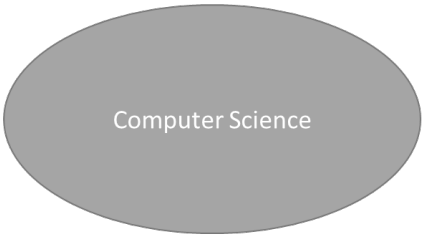
"I engineer circuits for **controlling** the phenomenon of electricity."

My mental tools are: circuit theory, mathematics, and physics.



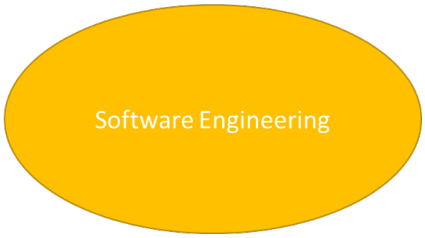
"I engineer circuits together into **systems** for performing computation."

My tools are: computer hardware, and computer software.



"I use computers to solve **algorithmic problems.**"

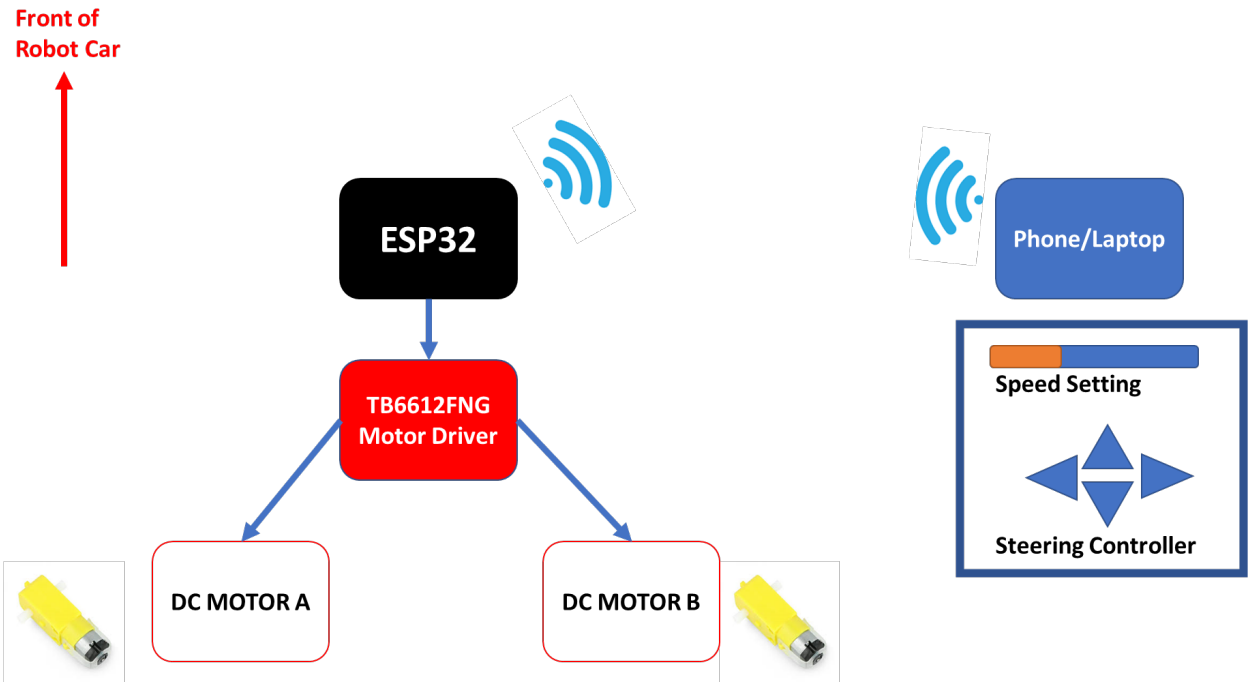
My mental tools are: logic and mathematics.



"I engineer software into **systems** for running algorithms."

My tools are: programming languages.

Here is the block diagram of the robot:



You will work with your team to complete each module and building the Team robot. On the last day of the camp, you will race your Team robots!

All modules related to the camp are available here:

https://www.reachrf.com/stem-camp