Handshaking Project Documentation

(Add Your Name Here)

Design Brief

Using Vex Cortex, design, code, build and test a system of robotic components where the output from one system becomes the input of another system.

When a switch connected to VEX Cortex® 1 is manually pressed the operation starts.

When a switch (could be the same switch as the previous step) connected to the Cortex 1 is pressed, a motor on Cortex 2 rotates at full power. When the switch is released, the motor stops.

When a switch connected to the Cortex 2 is pressed, a motor on Cortex 1 rotates at full power. When the switch is released, the motor stops.

Sketch the basic hardware configuration to be used in this communication process.
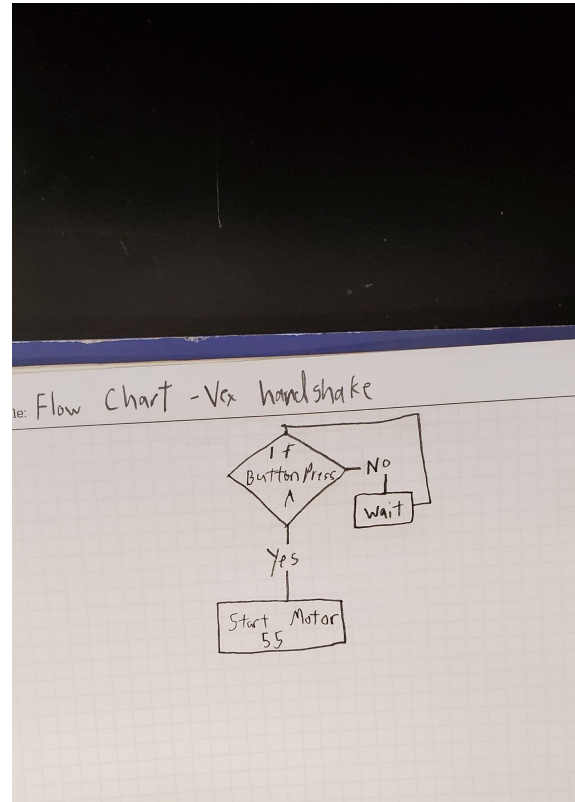
Sketch the pseudocode or flowchart to complete the communication process for this activity.

Build, code, and test your design BE SURE TO DOCUMENT EVERYTHING!!

Sketch of hardware configuration
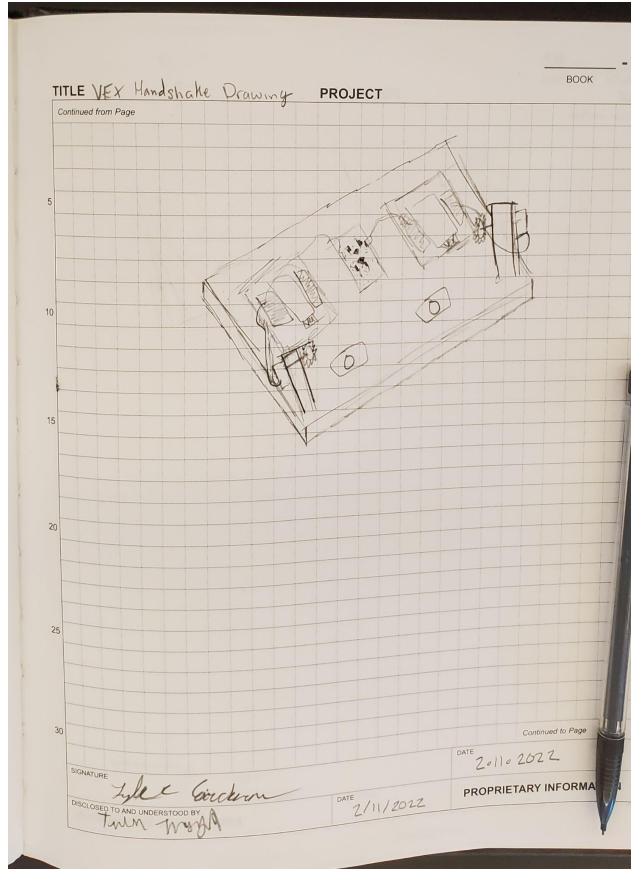
Pictures of flowchart and pseudocode

Flow Chart - Vex handshake

If Button Press A — No → wait

Yes

Start Motor 5.5

Vex Unit Evan Code
When button A press-
Send signal out to breadboard

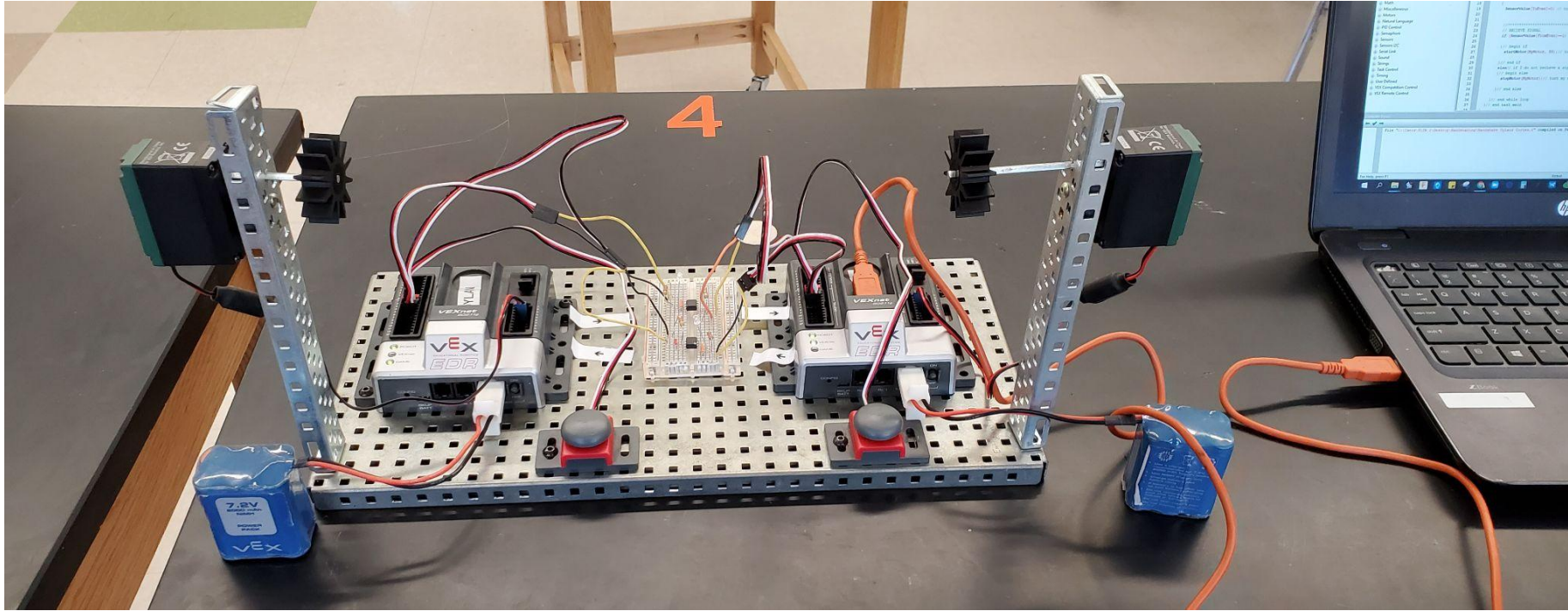When Input =yes
Run motor A

Vex Unit Dylan Code
When Input =yes
Run motor B
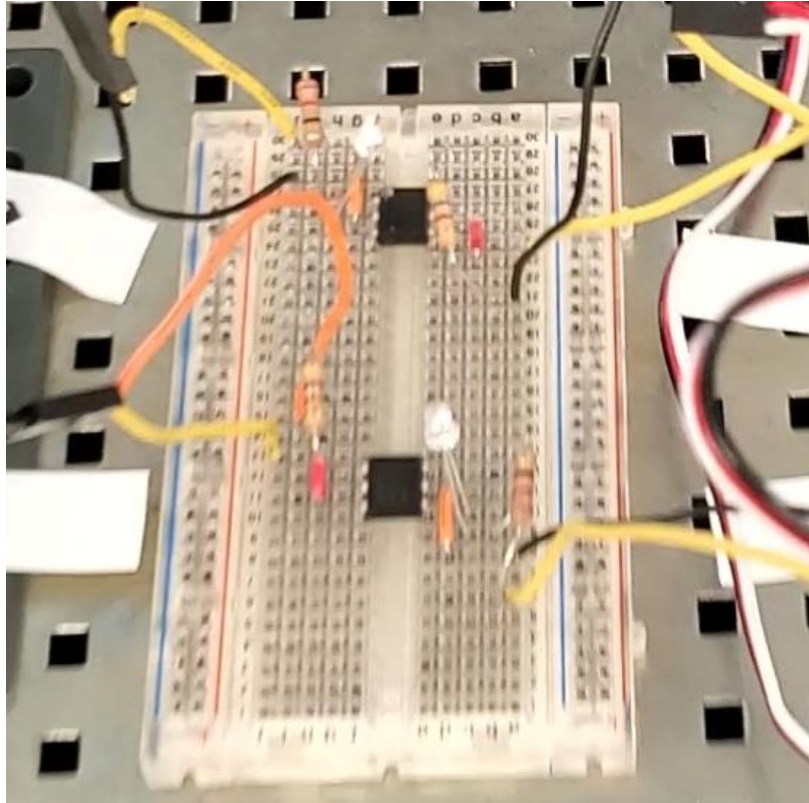
When button B press-
Send signal out to breadboard

Pictures of building process

Picture of your Optical Isolator breadboard

Screenshot of your code in Robotc

```
#pragma config(Sensor, dgtl1,  MyInput,        sensorTouch)
#pragma config(Sensor, dgtl2,  FromEvan,       sensorTouch)
#pragma config(Sensor, dgtl3,  ToEvan,         sensorDigitalOut)
#pragma config(Motor,  port1,        MyMotor,        tmotorVex393_HBridge, openLoop)
//*!!Code automatically generated by 'ROBOTC' configuration wizard            !!*//

task main()

{// start task main
  while (true)
  {// start while loop
    if (SensorValue[MyInput]==1)// I push Switch
    {
      SensorValue[ToEvan]=1;  //send signal to dylan coretex and turn on their motor

    }
    else// if I do not push the switch
    {
      SensorValue[ToEvan]=0; // turn off signal


      //****************************************************************************
      // RECIEVE SIGNAL
      if (SensorValue[FromEvan]==1) // If I recieve a signal from dylan

      {// begin if
        startMotor(MyMotor, 55);// turn on my motor half speed

      }// end if
      else// if I do not recieve a signal
      {// begin else
        stopMotor(MyMotor);// turn my motor off

      }// end else

  }// end while loop
  }// end task main
}
```
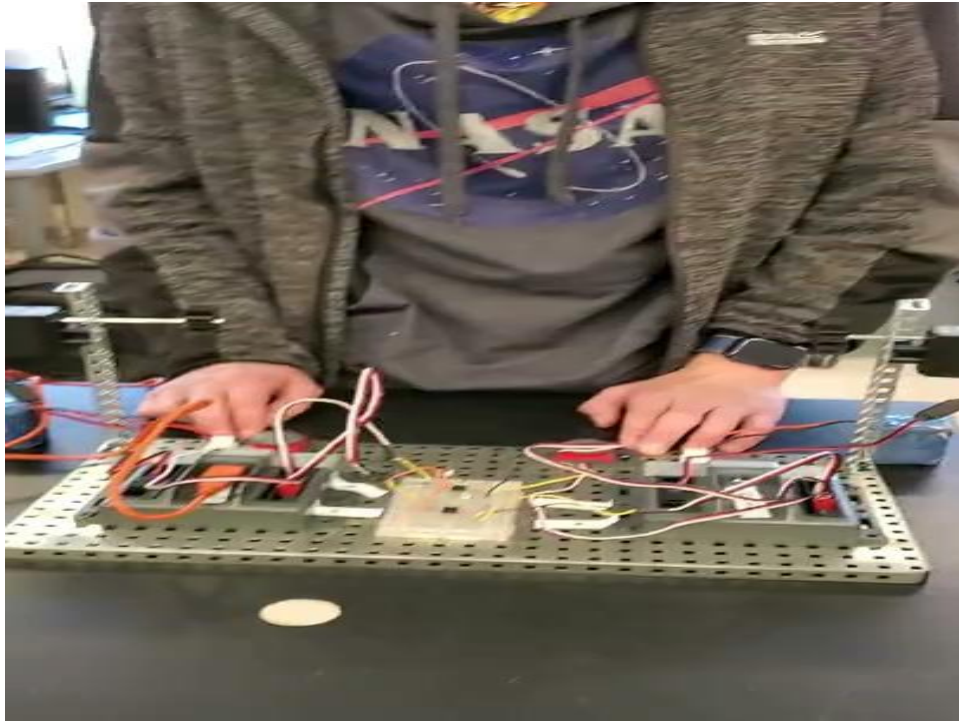
Video of your handshaking

Link to Video on Youtube

Reflect on how you overcame challenges

Students should write a 1-2 paragraph synopsis of how they handled 2 challenges they faced while completing this project.
1. Identify the specific challenge faced
   a. One of the challenges we faced was the breadboard. It has been a while since we used one and figuring out how to wire the optical isolator was tough
2. Explain in detail the steps taken to overcome the challenge.
   a. We referred to the Project Lead the Way website several times as well as took notes and pictures of what we did so that we would be able to identify if we made a mistake and not make it again.

Conclusion Questions

1. Explain what machine configurations would be useful to provide communication between.
    a. I think it would be useful to communicate between a robotic arm and a milling machine
2. What sensors would be useful to add to a system?
    a. I think adding a sonar sensor would be helpful because if something was in the way then the motor would not start.