So I started by assembling my figit robot, making it linked up with my computer, then I copied and pasted the move 1 code from the figits website. I had to change the moter referrals because it was moving backwards instead of forwards.

```
public static void main(String[] args) throws Exception {

        //Connect to wireless rover
        Net.addServer("", "192.168.100.1", 5661, "", 0);

        //Create
        DCMotor leftMotors = new DCMotor();
        DCMotor rightMotors = new DCMotor();

        //Address
        leftMotors.setChannel(0);
        rightMotors.setChannel(1);

        //Open
        leftMotors.open(5000);
        rightMotors.open(5000);

        //Move forward at full speed
        leftMotors.setTargetVelocity(1);
        rightMotors.setTargetVelocity(1);

        //Wait for 1 second
        Thread.sleep(1000);

        //Stop motors
        leftMotors.setTargetVelocity(0);
        rightMotors.setTargetVelocity(0);
    }
```

I halved the speed

```
public static void main(String[] args) throws Exception {

        //Connect to wireless rover
        Net.addServer("", "192.168.100.1", 5661, "", 0);

        //Create
        DCMotor leftMotors = new DCMotor();
        DCMotor rightMotors = new DCMotor();

        //Address
        leftMotors.setChannel(0);
        rightMotors.setChannel(1);

        //Open
        leftMotors.open(5000);
        rightMotors.open(5000);

        //Move forward at full speed
        leftMotors.setTargetVelocity(0.5);
        rightMotors.setTargetVelocity(0.5);

        //Wait for 1 second
        Thread.sleep(1000);

        //Stop motors
        leftMotors.setTargetVelocity(0);
        rightMotors.setTargetVelocity(0);
    }
```

Next I made the sleep time doubled

```
public static void main(String[] args) throws Exception {

    //Connect to wireless rover
    Net.addServer("", "192.168.100.1", 5661, "", 0);

    //Create
    DCMotor leftMotors = new DCMotor();
    DCMotor rightMotors = new DCMotor();

    //Address
    leftMotors.setChannel(0);
    rightMotors.setChannel(1);

    //Open
    leftMotors.open(5000);
    rightMotors.open(5000);

    //Move forward at full speed
    leftMotors.setTargetVelocity(1);
    rightMotors.setTargetVelocity(1);

    //Wait for 1 second
    Thread.sleep(2000);

    //Stop motors
    leftMotors.setTargetVelocity(0);
    rightMotors.setTargetVelocity(0);
}
```

Next I changed the motors to go backwards

```
public static void main(String[] args) throws Exception {

    //Connect to wireless rover
    Net.addServer("", "192.168.100.1", 5661, "", 0);

    //Create
    DCMotor leftMotors = new DCMotor();
    DCMotor rightMotors = new DCMotor();

    //Address
    leftMotors.setChannel(0);
    rightMotors.setChannel(1);

    //Open
    leftMotors.open(5000);
    rightMotors.open(5000);

    //Move forward at full speed
    leftMotors.setTargetVelocity(-1);
    rightMotors.setTargetVelocity(-1);

    //Wait for 1 second
    Thread.sleep(1000);

    //Stop motors
    leftMotors.setTargetVelocity(0);
    rightMotors.setTargetVelocity(0);
}
```

Next I copied the turning code from the figits website

```
public static void main(String[] args) throws Exception {

    //Connect to wireless rover
    Net.addServer("", "192.168.100.1", 5661, "", 0);

    //Create
    DCMotor leftMotors = new DCMotor();
    DCMotor rightMotors = new DCMotor();

    //Address
    leftMotors.setChannel(0);
    rightMotors.setChannel(1);

    //Open
    leftMotors.open(5000);
    rightMotors.open(5000);

    //Turn in one direction
    leftMotors.setTargetVelocity(1);
    rightMotors.setTargetVelocity(-1);

    //Wait for 2 second
    Thread.sleep(2000);

    //Stop motors
    leftMotors.setTargetVelocity(0);
    rightMotors.setTargetVelocity(0);
}
```

Next I modified the motors to turn the other direction

```
public static void main(String[] args) throws Exception {

    //Connect to wireless rover
    Net.addServer("", "192.168.100.1", 5661, "", 0);

    //Create
    DCMotor leftMotors = new DCMotor();
    DCMotor rightMotors = new DCMotor();

    //Address
    leftMotors.setChannel(0);
    rightMotors.setChannel(1);

    //Open
    leftMotors.open(5000);
    rightMotors.open(5000);

    //Turn in one direction
    leftMotors.setTargetVelocity(1);
    rightMotors.setTargetVelocity(-1);

    //Wait for 2 second
    Thread.sleep(2000);

    //Stop motors
    leftMotors.setTargetVelocity(0);
    rightMotors.setTargetVelocity(0);
}
```

Next I added the move forwards code at the end

```
public static void main(String[] args) throws Exception {

    //Connect to wireless rover
    Net.addServer("", "192.168.100.1", 5661, "", 0);

    //Create
    DCMotor leftMotors = new DCMotor();
    DCMotor rightMotors = new DCMotor();

    //Address
    leftMotors.setChannel(0);
    rightMotors.setChannel(1);

    //Open
    leftMotors.open(5000);
    rightMotors.open(5000);

    //Move forward at full speed
    leftMotors.setTargetVelocity(-1);
    rightMotors.setTargetVelocity(-1);

    //Wait for 1 second
    Thread.sleep(2000);

    //Stop motors
    leftMotors.setTargetVelocity(0);
    rightMotors.setTargetVelocity(0);



    //Turn in one direction
    leftMotors.setTargetVelocity(-1);
    rightMotors.setTargetVelocity(1);

    //Wait for 2 second
    Thread.sleep(1600);

    //Stop motors
    leftMotors.setTargetVelocity(0);
    rightMotors.setTargetVelocity(0);

  //Open
    leftMotors.open(5000);
    rightMotors.open(5000);

    //Move forward at full speed
    leftMotors.setTargetVelocity(-1);
    rightMotors.setTargetVelocity(-1);

    //Wait for 1 second
    Thread.sleep(2000);
```

Next I copied the senser code from the website

```
while (true) {

    System.out.println("Distance: " + sonar.getDistance() + " mm");

    if (sonar.getDistance() < 200) {
        //Object detected! Stop motors
        leftMotors.setTargetVelocity(0);
        rightMotors.setTargetVelocity(0);
    } else {
        //Move forward slowly (25% max speed)
        leftMotors.setTargetVelocity(-0.25);
        rightMotors.setTargetVelocity(-0.25);
    }

    //Wait for 250milliseconds
    Thread.sleep(250);
}
```

Next I doubled the forward speed

```
while (true) {

    System.out.println("Distance: " + sonar.getDistance() + " mm");

    if (sonar.getDistance() < 400) {
        //Object detected! Stop motors
        leftMotors.setTargetVelocity(0);
        rightMotors.setTargetVelocity(0);
    } else {
        //Move forward slowly (25% max speed)
        leftMotors.setTargetVelocity(-0.50);
        rightMotors.setTargetVelocity(-0.50);
    }

    //Wait for 250milliseconds
    Thread.sleep(250);
}
```

Next I made it move backwards when it sees an object

```
while (true) {

    System.out.println("Distance: " + sonar.getDistance() + " mm");

    if (sonar.getDistance() < 400) {
        //Object detected! Stop motors
        leftMotors.setTargetVelocity(0.25);
        rightMotors.setTargetVelocity(0.25);
    } else {
        //Move forward slowly (25% max speed)
        leftMotors.setTargetVelocity(-0.50);
        rightMotors.setTargetVelocity(-0.50);
    }

    //Wait for 250milliseconds
    Thread.sleep(250);
}
```

Next I made it sense every 0.1 seconds instead of 0.25 seconds

```
while (true) {

    System.out.println("Distance: " + sonar.getDistance() + " mm");

    if (sonar.getDistance() < 400) {
        //Object detected! Stop motors
        leftMotors.setTargetVelocity(0.25);
        rightMotors.setTargetVelocity(0.25);
    } else {
        //Move forward slowly (25% max speed)
        leftMotors.setTargetVelocity(-0.50);
        rightMotors.setTargetVelocity(-0.50);
    }

    //Wait for 250milliseconds
    Thread.sleep(100);
}
```

Finally I copied my turn 1 code and began modifying it

```
for (i = 0; i < 3; i++)
{
     //Move forward at full speed
    leftMotors.setTargetVelocity(-1);
    rightMotors.setTargetVelocity(-1);

    //Wait for 1 second
    Thread.sleep(1350);

    //Stop motors
    leftMotors.setTargetVelocity(0);
    rightMotors.setTargetVelocity(0);

    //Turn in one direction
    leftMotors.setTargetVelocity(1);
    rightMotors.setTargetVelocity(-1);

    //Wait for 2 second
    Thread.sleep(610);

    //Stop motors
    leftMotors.setTargetVelocity(0);
    rightMotors.setTargetVelocity(0);
}
```

First I made a for loop that runs for 3 loops then placed my move forward code along with my turn code within it.

```
//Move forward at full speed
leftMotors.setTargetVelocity(-1);
rightMotors.setTargetVelocity(-1);

//Wait for 1 second
Thread.sleep(1400);

//Stop motors
leftMotors.setTargetVelocity(0);
rightMotors.setTargetVelocity(0);
```

Then for the final stretch I put another move forwards code.