

Advanced Manufacturing Academy 2016

ROBOTICS – 2
Load test code

College of Engineering and Technology

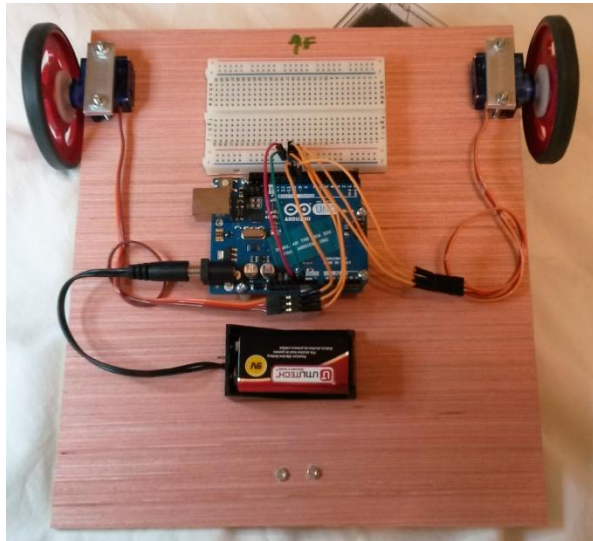
East Carolina University

Our Robot – Our Plan

- Assembly is complete!
- It isn't moving? We need code!
- First Code... Test functions – Demo
 - Go forward
 - Go backward
 - Turn right
 - Turn left
- If this doesn't happen – Make repairs

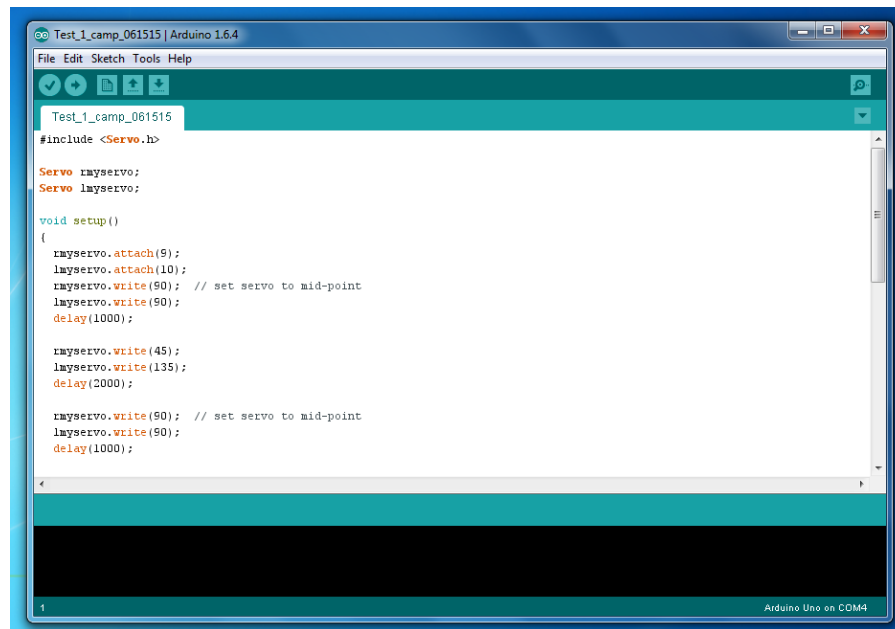
Loading Sample Code

- Load a prepared program
- You will need:
 - Robot
 - Programming cable
 - Laptop with software loaded



Loading Code – Step 1

- Steps
 - Computer up and running
 - Arduino Software started and running
 - Open sample code



```
Test_1_camp_061515 | Arduino 1.6.4
File Edit Sketch Tools Help
Test_1_camp_061515
#include <Servo.h>

Servo myservo;
Servo lmyservo;

void setup()
{
  myservo.attach(9);
  lmyservo.attach(10);
  myservo.write(90); // set servo to mid-point
  lmyservo.write(90);
  delay(1000);

  myservo.write(45);
  lmyservo.write(135);
  delay(2000);

  myservo.write(90); // set servo to mid-point
  lmyservo.write(90);
  delay(1000);
}

Arduino Uno on COM4
```

Loading Code - Software

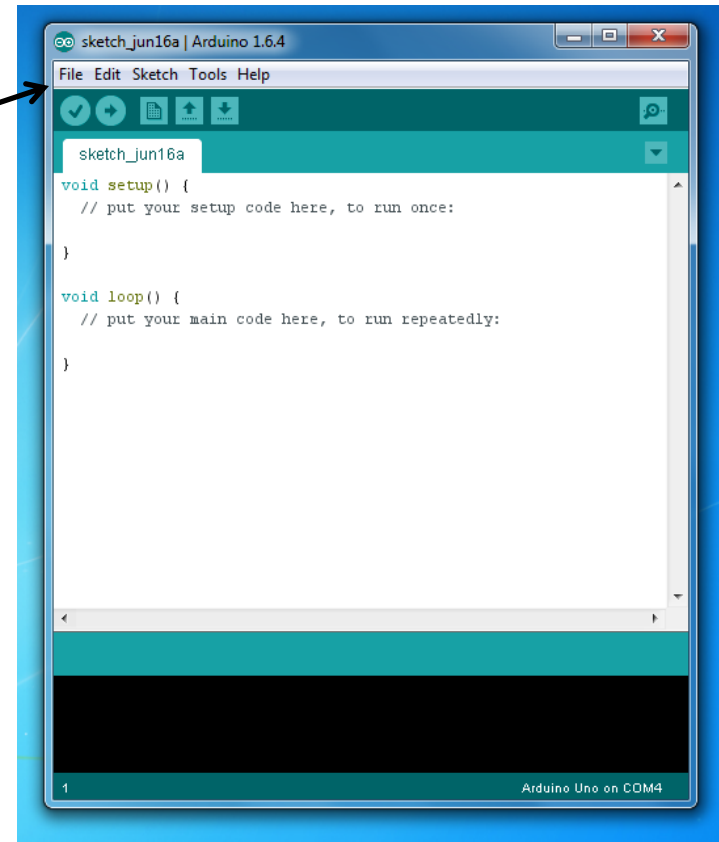
- Find this Icon on the desktop and click..



Loading Code – Software (cont)

- Let it start up – It should look like this..

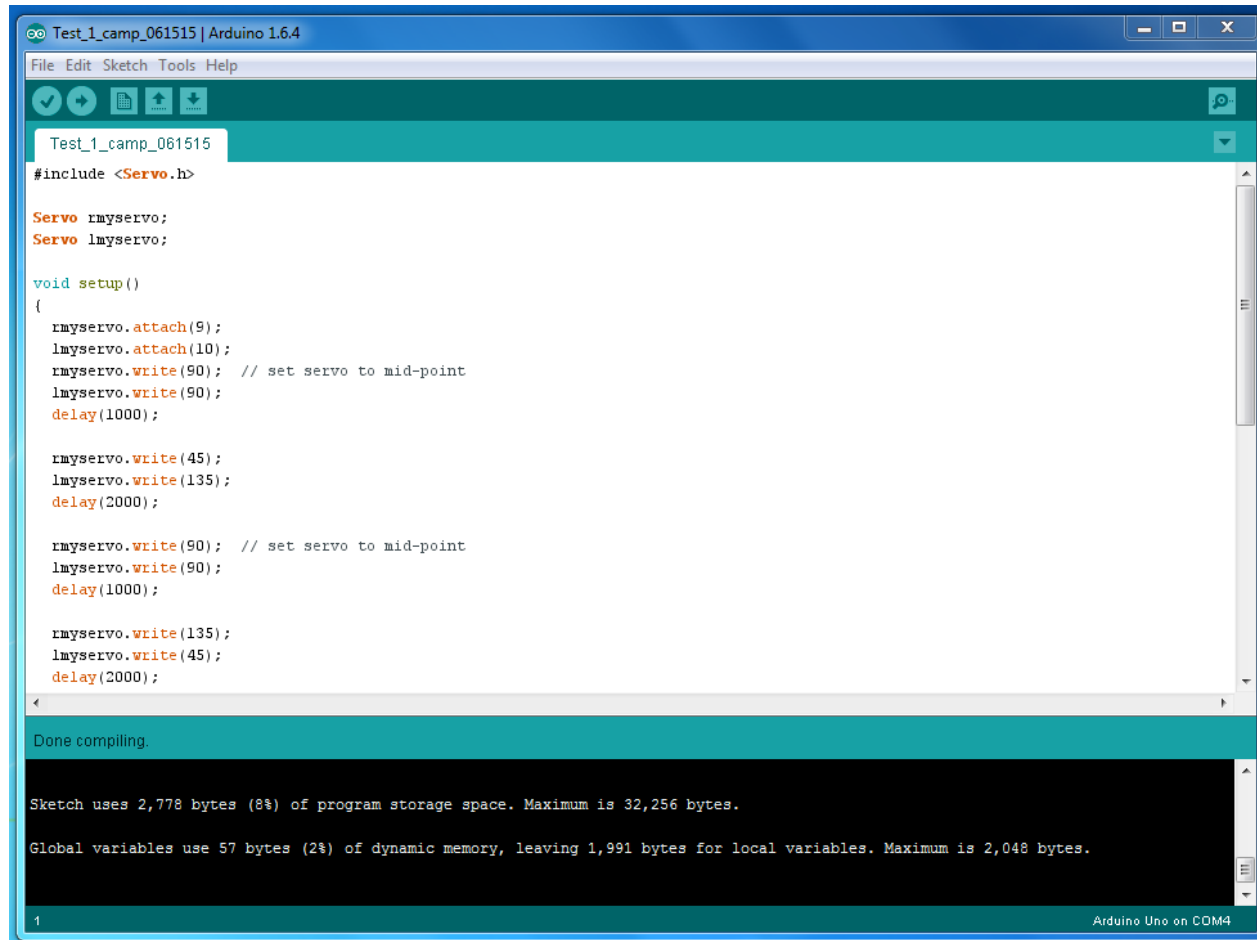
Click on "FILE"



- Click on: File, Open
 - Navigate to desktop
 - Open: Test_1_camp_062016

Loading Code – Software (cont)

- When file loads– It should look like this..



```
Test_1_camp_061515 | Arduino 1.6.4
File Edit Sketch Tools Help
Test_1_camp_061515
#include <Servo.h>

Servo myservo;
Servo lmyservo;

void setup()
{
  myservo.attach(9);
  lmyservo.attach(10);
  myservo.write(90); // set servo to mid-point
  lmyservo.write(90);
  delay(1000);

  myservo.write(45);
  lmyservo.write(135);
  delay(2000);

  myservo.write(90); // set servo to mid-point
  lmyservo.write(90);
  delay(1000);

  myservo.write(135);
  lmyservo.write(45);
  delay(2000);
}

Done compiling.

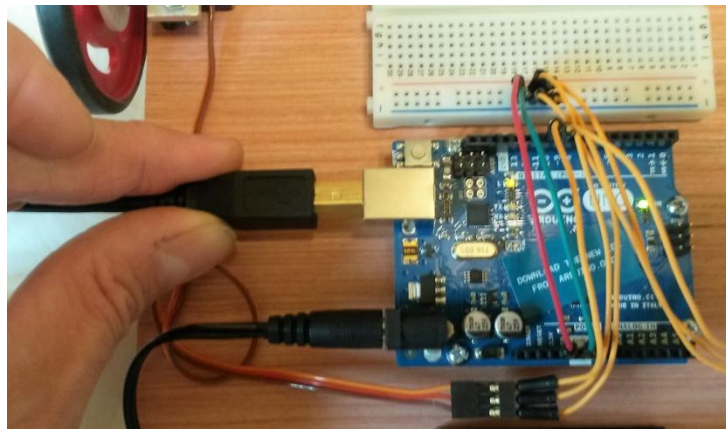
Sketch uses 2,778 bytes (8%) of program storage space. Maximum is 32,256 bytes.

Global variables use 57 bytes (2%) of dynamic memory, leaving 1,991 bytes for local variables. Maximum is 2,048 bytes.

1 Arduino Uno on COM4
```

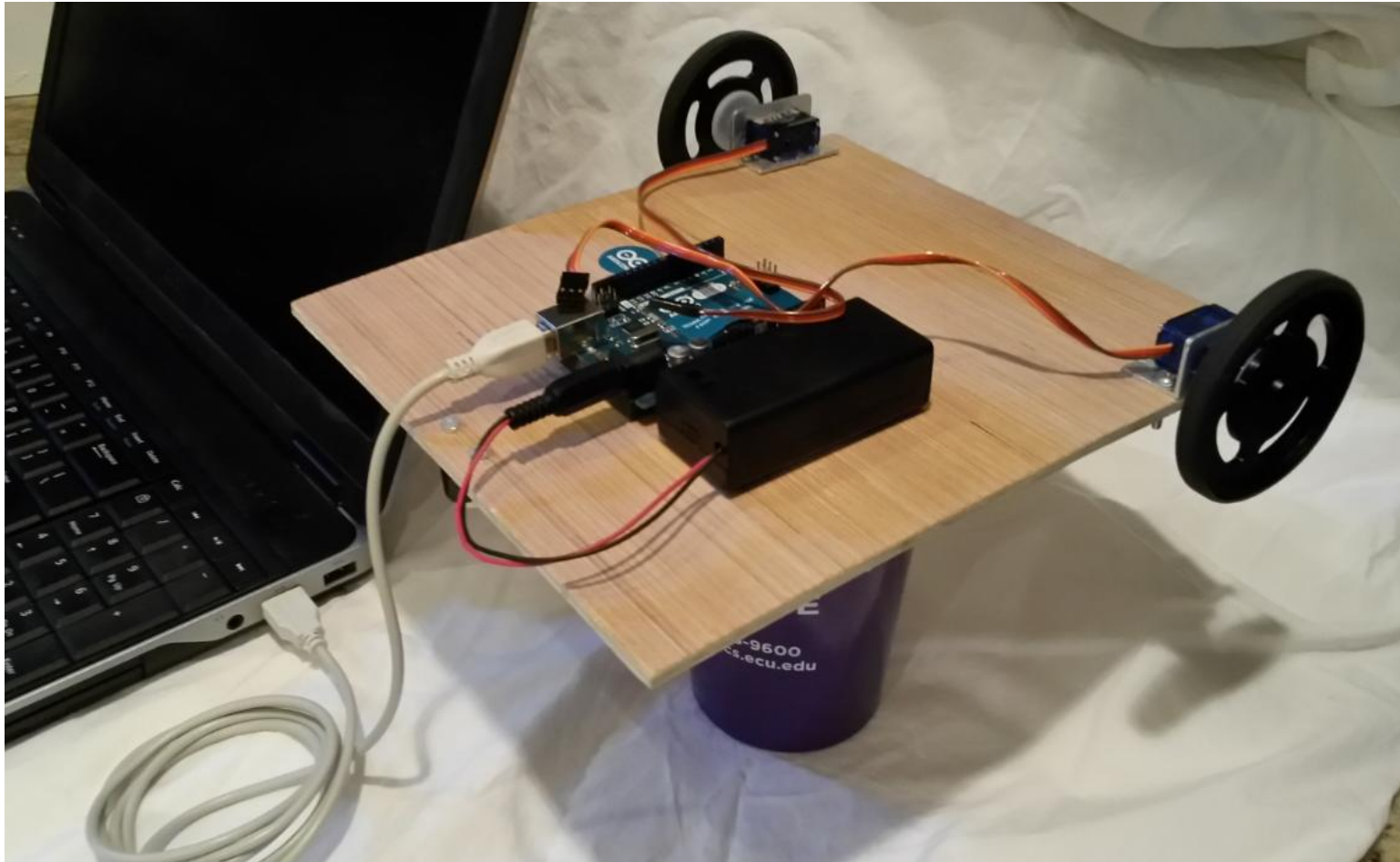
Loading Code – Step 2

- Wheels up! Fingers out!
 - Very important
 - Place the robot so it can't move
 - Keep fingers out of moving parts
- Plug the battery into the Arduino
- Plug the programming cable into the Arduino.



Loading Code – Step 2 (cont)

- Robot and computer should look like...

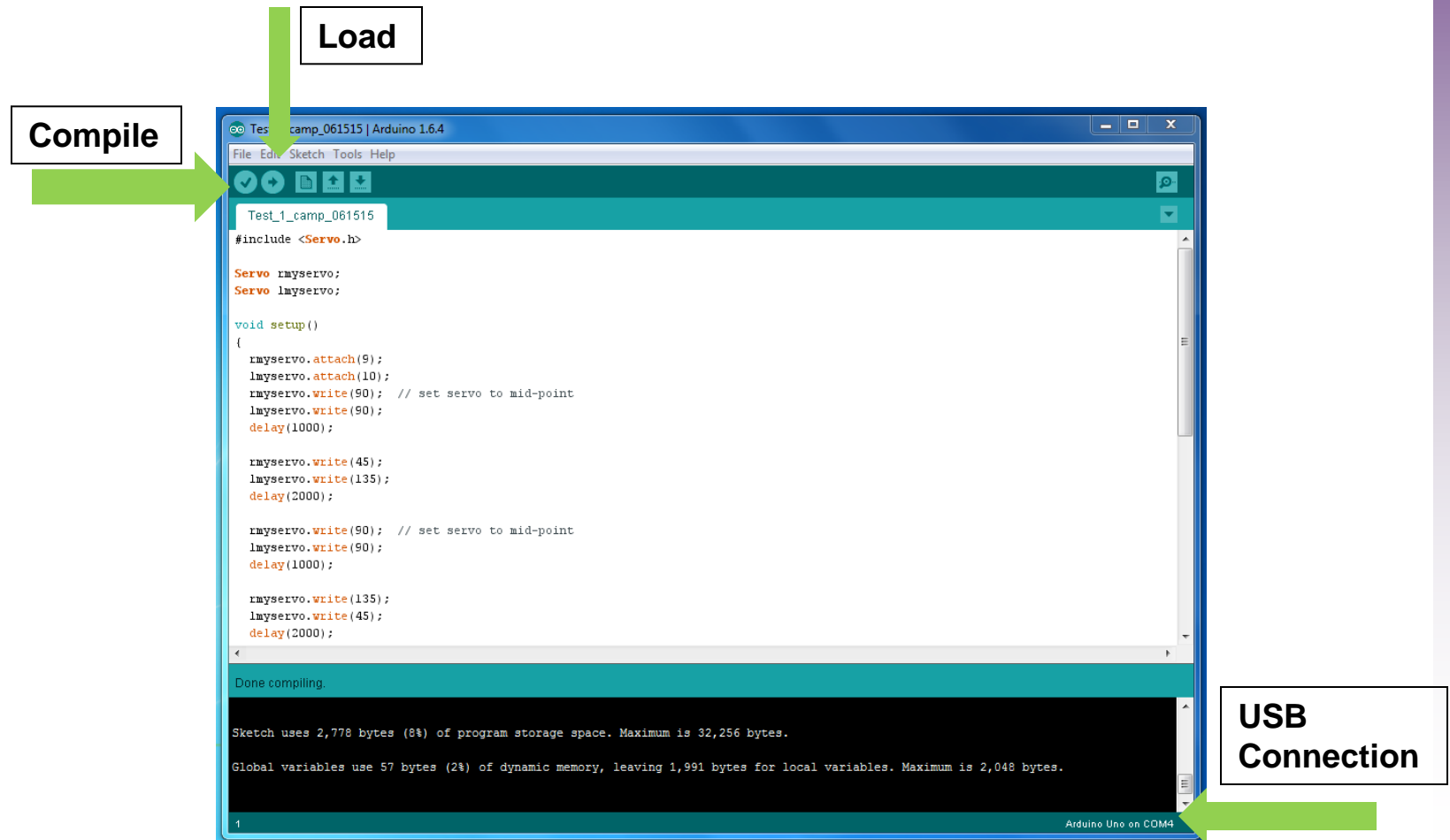


Loading Code – Step 3

- Confirm a USB connection
 - Watch Demo
- Compile/confirm code
- Download code
 - Flashing lights
 - Robot will begin moving

Loading Code – Step 3 (cont)

- Screen should look like this....



Check Your Work!

- Code will run one cycle and stop.
- Unplug USB cable from Arduino
- Place robot on flat surface.
- Code will always run as soon as you plug in the battery. (This model)
- Code is stored on the Arduino
- Press the “Reset” button to run again.

Check Your Work (cont)

- Test Program
 - Robot will:
 - ✓ Drive forward for ~2 seconds
 - ✓ Drive backward for ~2 seconds
 - ✓ Turn right for ~2 seconds
 - ✓ Turn left for ~2 seconds
 - ✓ 1 second pause between each step
 - If this happens – All is well!
 - If not... See an instructor for assistance!

CONGRATULATIONS!

- Your robot is ready for it's next adventure!

