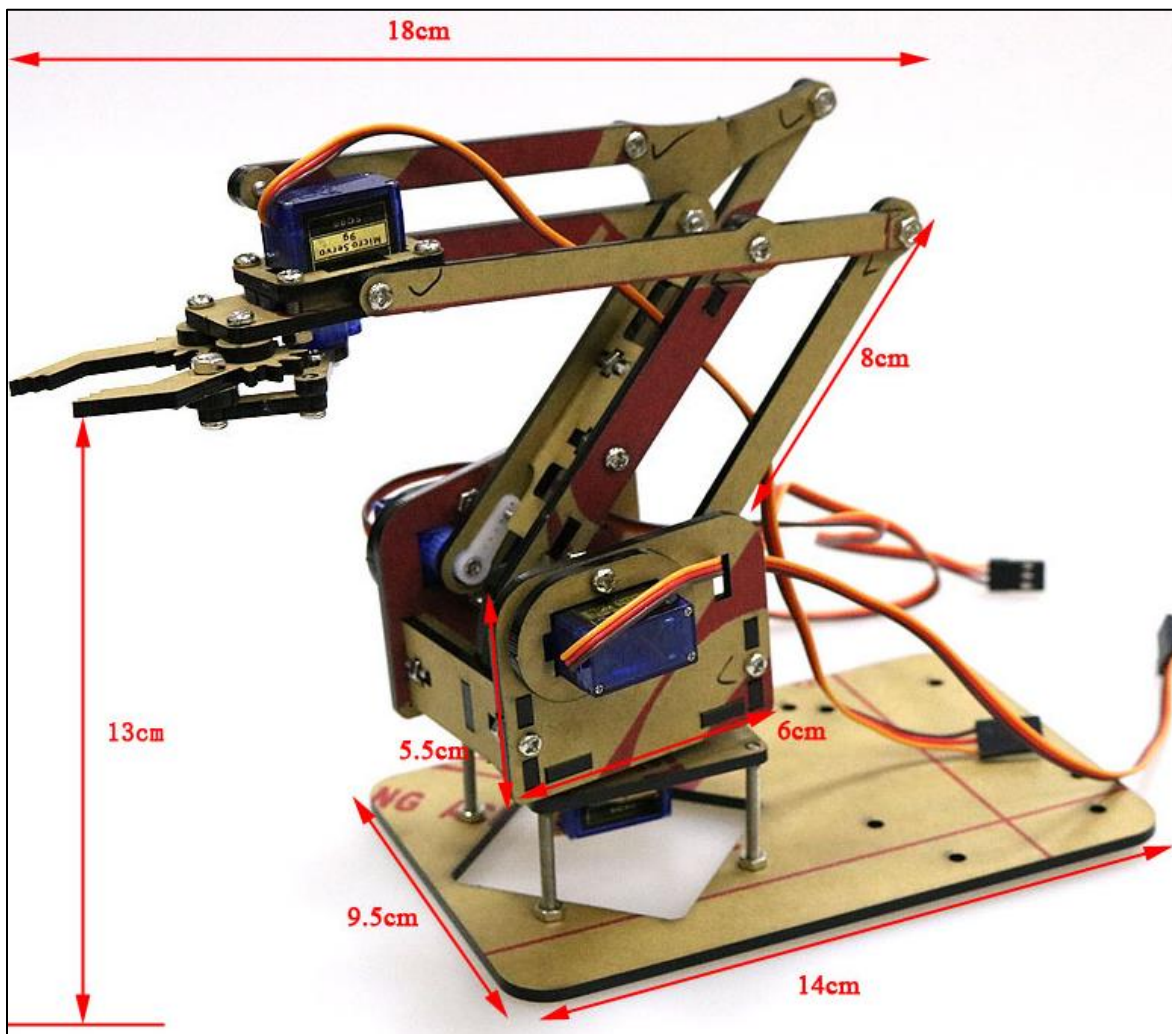


ARDUINO ROBOTIC ARM 4 DOF



Introduction

The MeArm project aims to bring a simple Robot Arm well within the reach and budget of the average educator, student, parent or child. The design brief that has been set out with was to build a full robot arm kit with standard low cost screws, low cost servomotors and using less than 300 x 200mm (~A4) of acrylic. While trying to solve the robotic problem, user also can get to learn about science, technology, engineering, arts and mathematics or STEAM.

The more people who are involved with these STEAM activities the more chance they have of solving all of life's problems. The MeArm is an Open Sourced Robot Arm. It's small, like pocket sized and that's for a reason. It can be cut entirely from an A4 (or more accurately 300x200mm) sheet of acrylic and built with 4pcs cheap hobby servos. It supposed to be an educational aid, or more accurately a toy. It still needs some tinkering but is at a good first draft state.



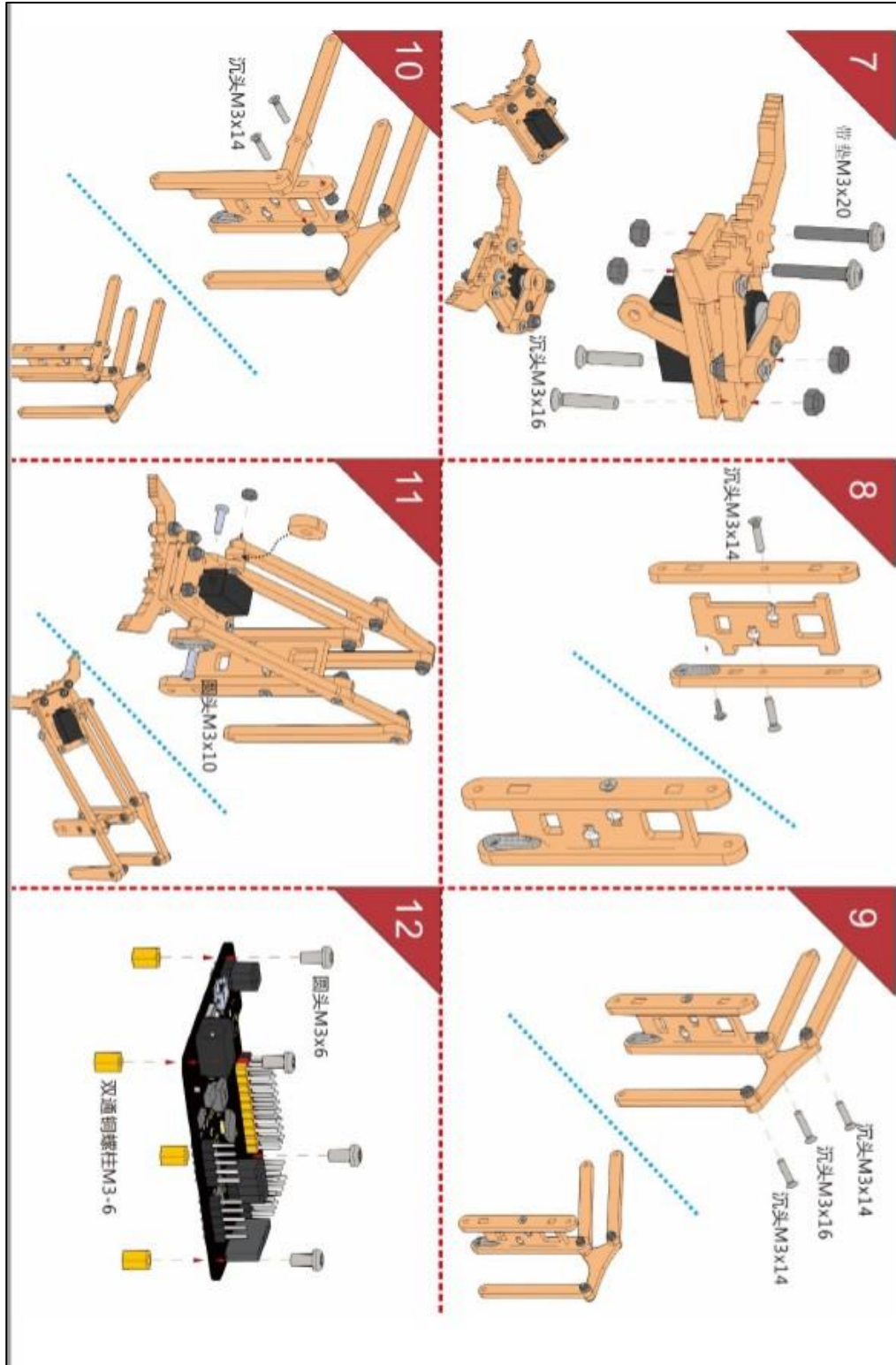
Component List

- | | |
|------------------------------------|---------|
| 1. Servo Motor SG90S (Blue) | - 3set |
| 2. Servo Motor MG90S (Black) | - 1set |
| 3. Robotic Arm Acrylic Kit | - 1set |
| 4. Arduino UNO R3 (CH340) + Cable | - 1pcs |
| 5. Arduino Sensor Shield V5 | - 1pcs |
| 6. Joystick Module | - 2pcs |
| 7. Jumper Wire Female to Female | - 10pcs |
| 8. Power Adapter DC 5v 2A | - 1pcs |
| 9. DC Jack (Female) Plug Converter | - 1pcs |
| 10. Single Core Cable | - 1m |

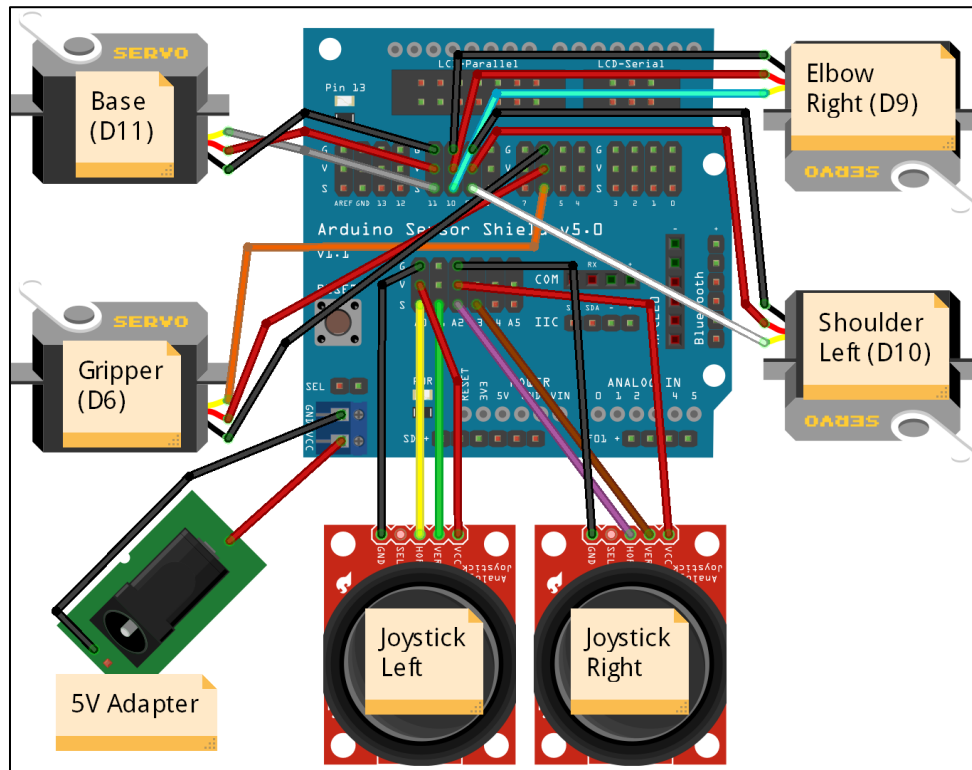


Installation Manual

Reference: [Assembly of MeArm Mechanical Arm \(gitnova.com\)](http://gitnova.com)



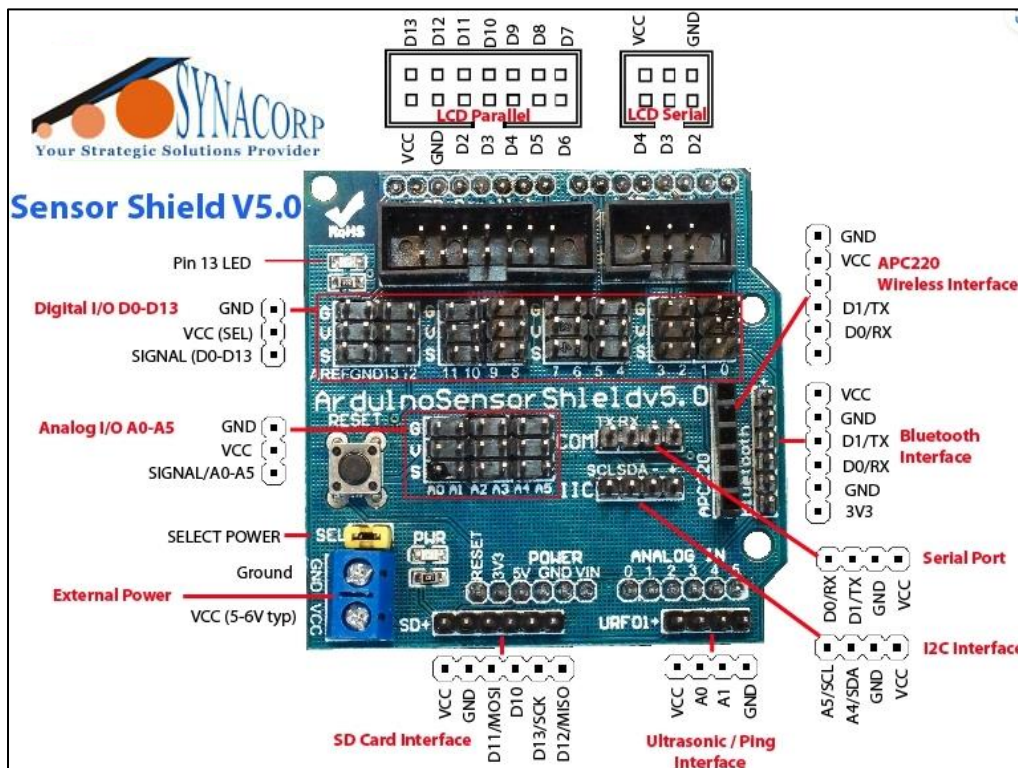
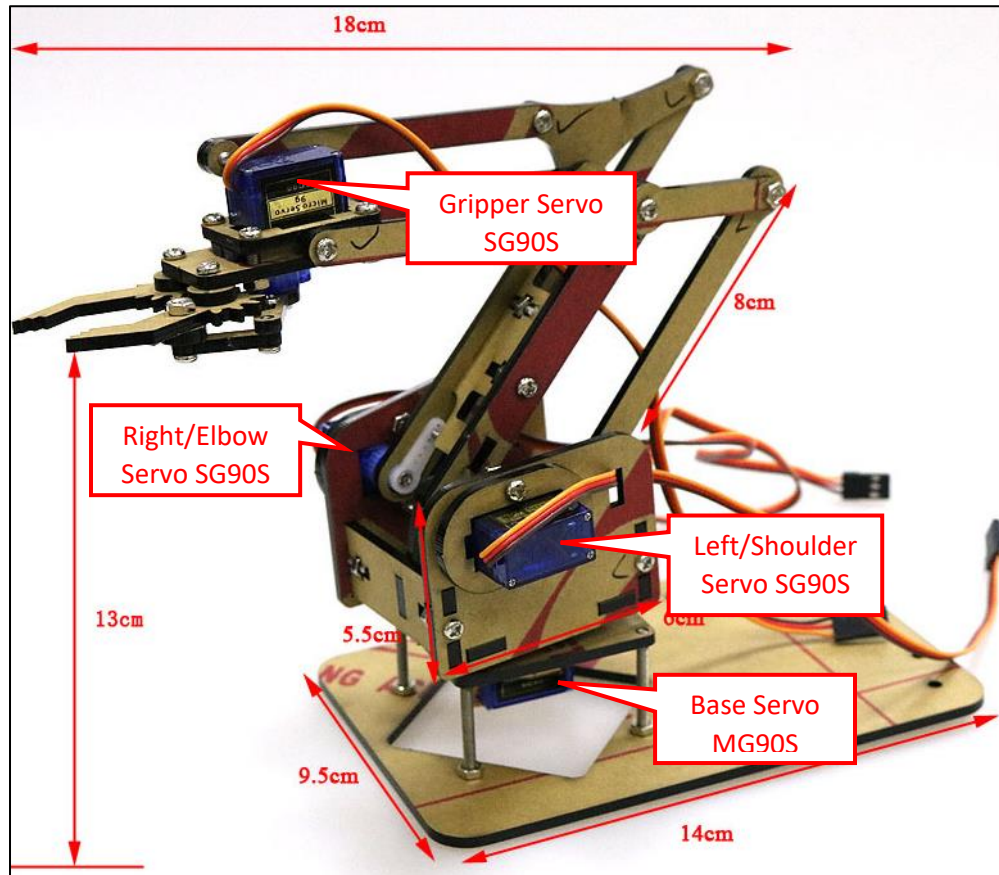
Circuit Diagram



Arduino Sensor Shield V5	Servo MG90S (Base) *Black Color*
Data 11 (D11)	Signal (S)
VCC	VCC
GND	GND
Arduino Sensor Shield V5	Servo SG90S (Gripper)
Data 6 (D6)	Signal (S)
VCC	VCC
GND	GND
Arduino Sensor Shield V5	Servo SG90S (Shoulder/Left)
Data 10 (D10)	Signal (S)
VCC	VCC
GND	GND
Arduino Sensor Shield V5	Servo SG90S (Elbow/Right)
Data 9 (D9)	Signal (S)
VCC	VCC
GND	GND

Arduino Sensor Shield V5	Joystick Module Left
Analog 0 (A0)	VRX
Analog 1 (A1)	VRY
VCC	VCC
GND	GND
Arduino Sensor Shield V5	Joystick Module Right
Analog 0 (A0)	VRX
Analog 1 (A1)	VRY
VCC	VCC
GND	GND
Arduino Sensor Shield V5	DC Power Jack
VCC	Positive Terminal (+)
GND	Negative Terminal (-)

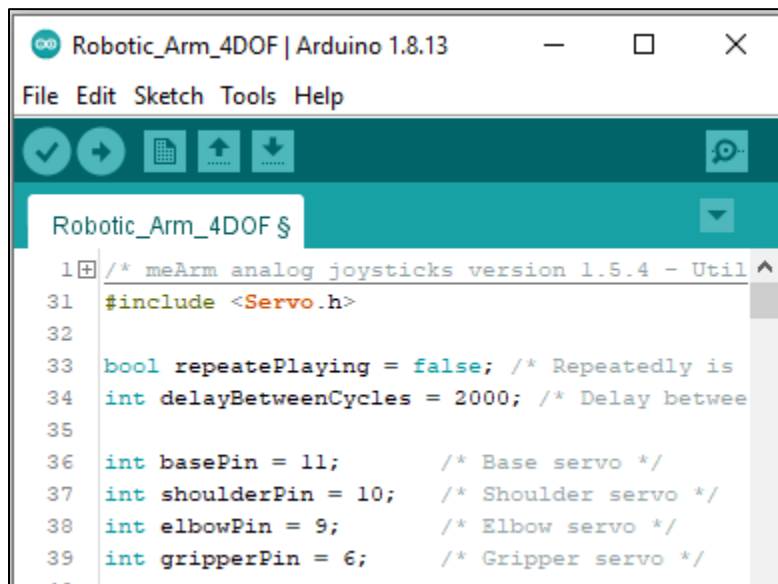




Sample Code

Upload this code after finish Kit installation.

(<https://home.mycloud.com/action/share/5b03c4d0-a74d-4ab5-9680-c84c75a17a70>)

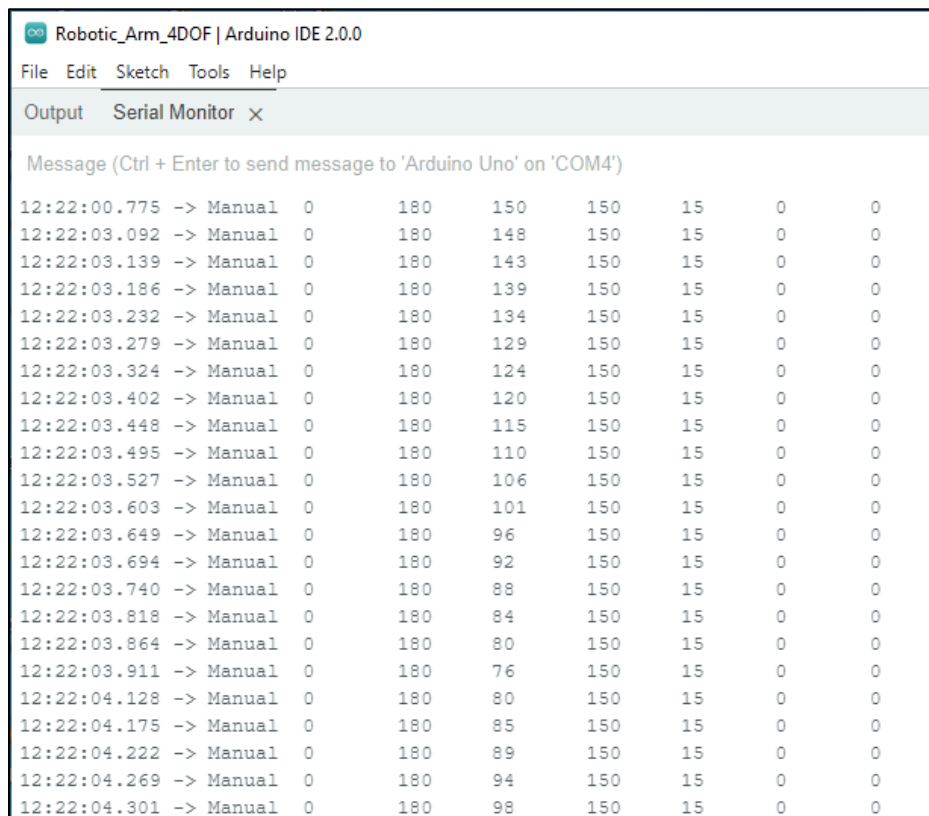


```

1 /* meArm analog joysticks version 1.5.4 - Util
31 #include <Servo.h>
32
33 bool repeatePlaying = false; /* Repeatedly is
34 int delayBetweenCycles = 2000; /* Delay between
35
36 int basePin = 11;      /* Base servo */
37 int shoulderPin = 10;  /* Shoulder servo */
38 int elbowPin = 9;     /* Elbow servo */
39 int gripperPin = 6;    /* Gripper servo */

```

You can check servo angle via Serial Monitor



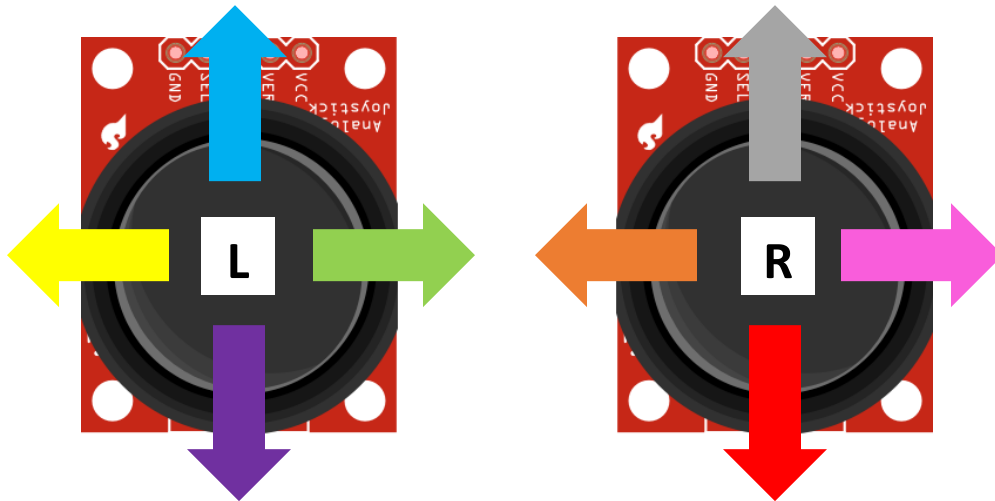
```

12:22:00.775 -> Manual 0      180    150    150    15    0    0
12:22:03.092 -> Manual 0      180    148    150    15    0    0
12:22:03.139 -> Manual 0      180    143    150    15    0    0
12:22:03.186 -> Manual 0      180    139    150    15    0    0
12:22:03.232 -> Manual 0      180    134    150    15    0    0
12:22:03.279 -> Manual 0      180    129    150    15    0    0
12:22:03.324 -> Manual 0      180    124    150    15    0    0
12:22:03.402 -> Manual 0      180    120    150    15    0    0
12:22:03.448 -> Manual 0      180    115    150    15    0    0
12:22:03.495 -> Manual 0      180    110    150    15    0    0
12:22:03.527 -> Manual 0      180    106    150    15    0    0
12:22:03.603 -> Manual 0      180    101    150    15    0    0
12:22:03.649 -> Manual 0      180    96    150    15    0    0
12:22:03.694 -> Manual 0      180    92    150    15    0    0
12:22:03.740 -> Manual 0      180    88    150    15    0    0
12:22:03.818 -> Manual 0      180    84    150    15    0    0
12:22:03.864 -> Manual 0      180    80    150    15    0    0
12:22:03.911 -> Manual 0      180    76    150    15    0    0
12:22:04.128 -> Manual 0      180    80    150    15    0    0
12:22:04.175 -> Manual 0      180    85    150    15    0    0
12:22:04.222 -> Manual 0      180    89    150    15    0    0
12:22:04.269 -> Manual 0      180    94    150    15    0    0
12:22:04.301 -> Manual 0      180    98    150    15    0    0

```



Control / Movement Set



Color	Servo	Action
L	Base	Turn Base to Right
L	Base	Turn Base to Left
L	Shoulder/Left	Move Upward
L	Shoulder/Left	Move Downward
R	Gripper	Open
R	Gripper	Close
R	Elbow/Right	Move Backward
R	Elbow/Right	Move Forward

