

## How to train your robot arm:

The roboarm allows the user to train a sequence of movement positions of up to 64 per training. After training the user can playback the sequence to verify the correct performance. If the movements are as desired, then the user can place the sequence in one of 10 demos premanently in the Arduino's software code.

### Mode switch:

left position: demo mode  
center position: playback mode  
right position: train mode

### Enter switch:

If the mode switch is in the demo or playback modes, then pressing the enter switch starts the operation. If the mode switch is in the train mode, then the enter switch stores each of the 64 positions and displays them on the serial monitor, to be captured for a later demo.

### IR remote:

If the mode switch is in the demo mode, then pressing the IR remote buttons 1 through 9 will start the demos 1 through 9. If the enter button on the proto board is pressed then demo 0 is executed.

The robot arm project consists of an Arduino Uno board and a 4 servo robot arm from hackaday. Plus a custom interface board.

1ea	Arduino Uno	<a href="http://www.sparkfun.com/products/11224">www.sparkfun.com/products/11224</a>
1ea	MeArm - Pocket Sized Robot Arm	<a href="http://www.hackaday.com">www.hackaday.com</a>
1ea	proto board	3.125"x 4.75"
4ea	linear pots	100K
1ea	switch	3 position
1ea	momentary push button	
1ea	rotary pot	5k (for lcd contrast)

### Adafruit:

1ea	Receiver Sensor (TSOP38238)	[ID:157]
1ea	Mini Remote Control	[ID:389]

Replace the four sero motors that come with the robot arm kit with:

4ea	Micro Servo - High Torque Metal Gear	[ID:1143]
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(note: the servo that come with the kit has an intermittent wiper contact, that causes the servo to seek(jitter) and pull a lot of current)

## How to train your roboarm:

start arduino on your pc  
open "E\_R\_ROBOARM" under recent (if you saved your own copy then use it)

if you haven't saved your own copy then save as (move up one directory) add your initials to the end of the project name and save

Make sure you change the "put your name here" fields in the code with your name to show up on the LCD display

recompile and download to roboarm

start the serial monitor

on the robotarm put into train mode

train all 64 positions and make sure each position is displayed on the serial monitor

after training copy the data from the serial monitor and past it over one of the 10 demo.h file demo's

remove the last comma from the data

save and compile and download to the arm

I think that is all there is to it!

here is a link to the Tower of Hanoi or Lucas tower:

<https://www.mathsisfun.com/games/towerofhanoi.html>

demo 9

**Example Demo:**

```
/*  
Public Constants  
*/
```

```
#define Max_steps 64
```

```
const byte demoplac[Max_steps*4] PROGMEM = { //static  
83, 123, 127, 1,  
82, 90, 153, 1,  
179, 90, 153, 1,  
179, 94, 103, 1,  
179, 113, 79, 1,  
179, 138, 79, 1,  
179, 152, 79, 1,  
179, 152, 79, 1,  
179, 152, 79, 179,  
179, 104, 155, 179,  
1, 104, 155, 179,  
1, 149, 67, 179,  
1, 149, 67, 1,  
1, 90, 93, 1,  
1, 90, 175, 1,  
83, 90, 175, 1,  
83, 90, 11, 1,  
15, 113, 84, 1,  
15, 140, 65, 1,  
15, 147, 81, 1,  
15, 147, 81, 179,  
27, 103, 163, 179,  
179, 103, 163, 179,  
179, 148, 79, 179,  
179, 148, 79, 1,  
179, 90, 179, 1,  
83, 90, 179, 1,  
83, 90, 179, 1,  
83, 90, 179, 1,  
83, 90, 179, 1,  
83, 90, 179, 1,  
83, 90, 179, 1,  
83, 123, 127, 1,  
82, 90, 153, 1,  
179, 90, 153, 1,  
179, 94, 103, 1,  
179, 113, 79, 1,  
179, 138, 79, 1,  
179, 152, 79, 1,  
179, 152, 79, 1,  
179, 152, 79, 179,  
179, 104, 155, 179,  
1, 104, 155, 179,  
1, 149, 67, 179,  
1, 149, 67, 1,  
1, 90, 93, 1,  
1, 90, 175, 1,  
83, 90, 175, 1,
```

