Replace your DC PowerPack with

DCC-EX

-- M Steve Todd

DC vs. DCC

DCC is Great!

Software Control, Automation, JMRI, EngineDriver, Sound, etc.
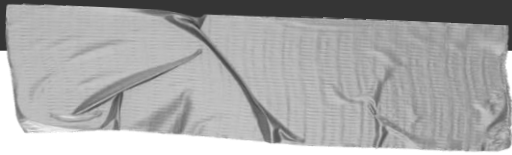
Independent locos on same track.

But...

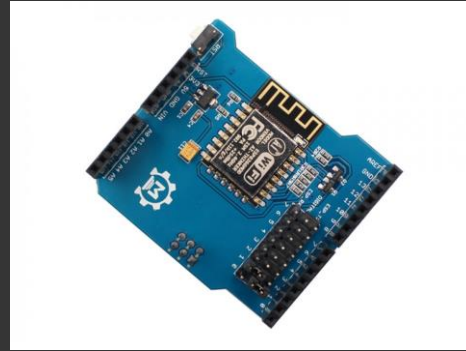Decoders are expensive!
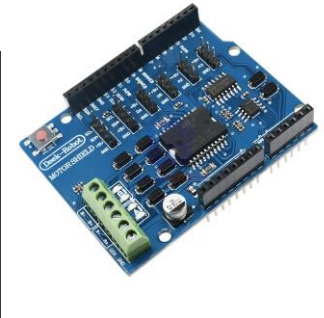
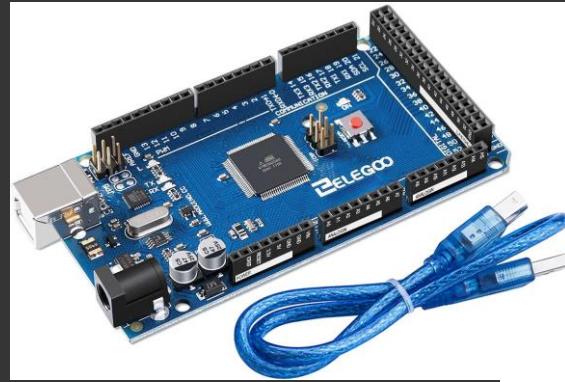Command Stations are expensive!

What if there was an alternative???

How much ??

- Mega = $21
- Deek-Robot Motor Shield = $8
- Makerfabs WiFi Shield = $9
- 12V 5A Power Supply = $13

Total = $51

Goal

Show you how to build and use a
software-based DCC command
station for WiFi throttles.
It's easier than you think.

DCC-EX

MATTHEW DEMO TIME!

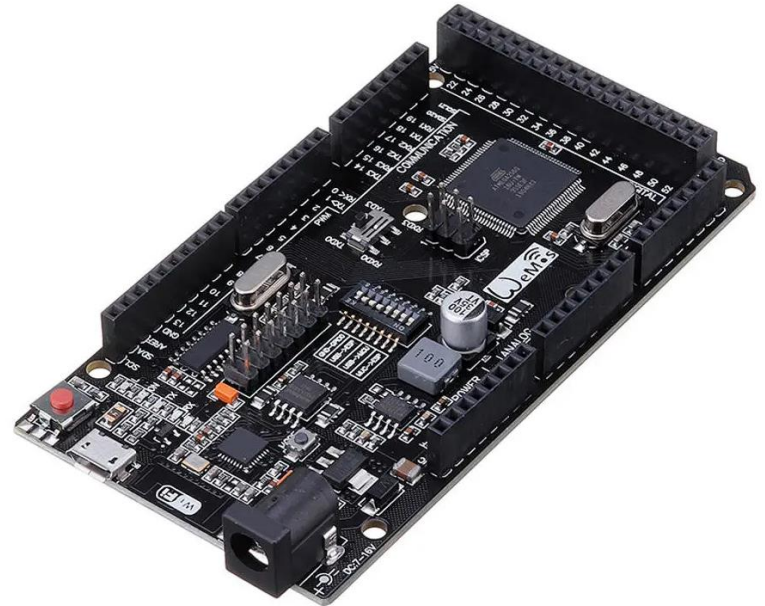# Overview

1) Get some stuff

2) Plug stuff together (no soldering!)

3) Download and install software

4) Connect to layout and power

5) Run trains from phone!
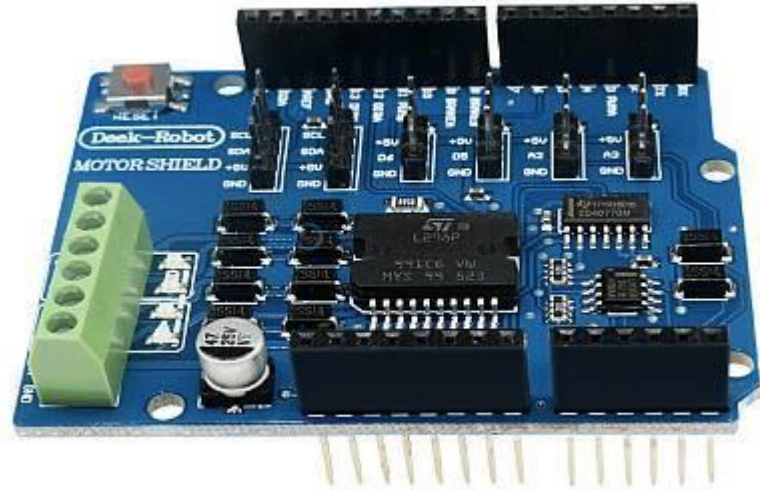
What is Arduino?

Arduino is an inexpensive open-source electronics platform based on easy-to-use hardware and software. Built for easy communication with electronic gadgetry, including "shields".

What's a Motor Shield?

Shield = Board that plugs into Arduino to provide electrical control.

Motor Shield = Creates DCC signal OR controls DC voltage.
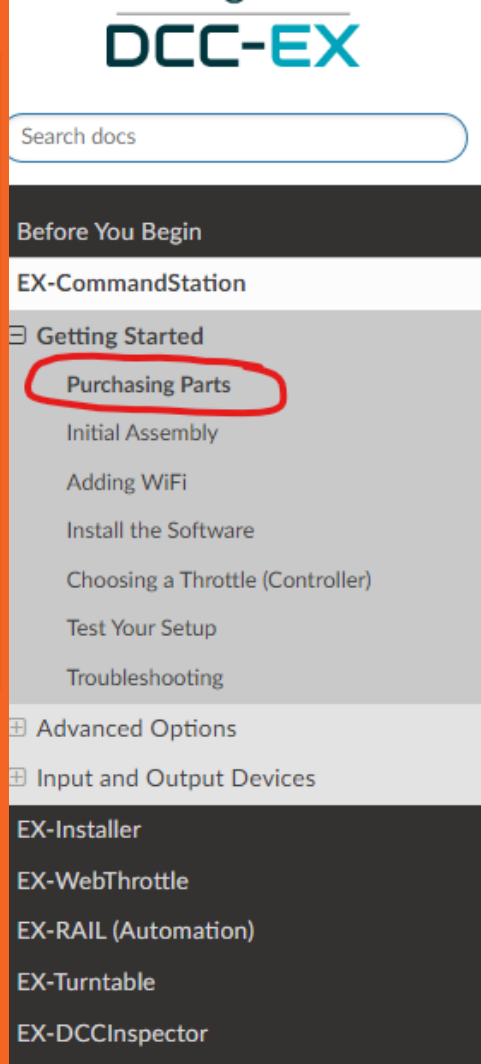
What is DCC-EX?

→ **My words**

Free **software command station** that runs on an **Arduino**. An Open Source project. **DCC-EX.COM**

→ **Their words**

DCC-EX is a team of dedicated enthusiasts producing open source *DCC solutions* for you to run your complete model railroad layout. Our easy to use, do-it-yourself, affordable products are based on off-the-shelf Arduino technology and are supported by numerous third party hardware and apps like JMRI, Engine Driver, wiThrottle, Rocrail and more.

Great Web Site!

→ **Open dcc-ex.com**
→ **Go to Getting Started**
→ **OR Purchasing Parts**
   Links to vendor pages!

DCC-EX

Search docs

Before You Begin

EX-CommandStation

⊟ Getting Started

   Purchasing Parts

   Initial Assembly

   Adding WiFi

   Install the Software

   Choosing a Throttle (Controller)

   Test Your Setup

   Troubleshooting

⊞ Advanced Options

⊞ Input and Output Devices

EX-Installer

EX-WebThrottle

EX-RAIL (Automation)

EX-Turntable

EX-DCCInspector

Purchasing Pa

Conductor Level

This page explains what you will nee
EX-CommandStation using the re

Some of the parts (like track and so
hand.

What you need to A

Hardware

You will need to find or purchase:

1. a supported **Arduino board**
   We recommend the Elegoo Meg

2. a supported **Motor Driver**
   We recommend the Deek-Robot

3. a supported **WiFi shield**

Assemble it

→ **Go to Initial Assembly**

→ **Add Motor Shield**
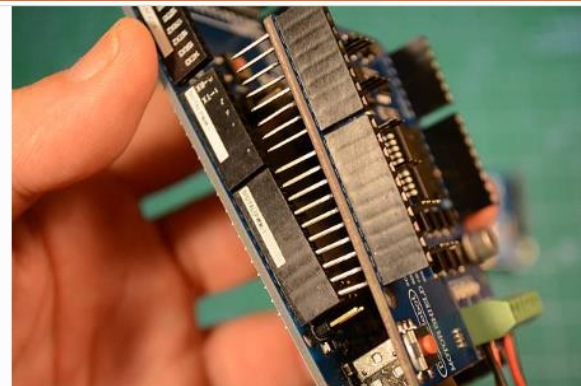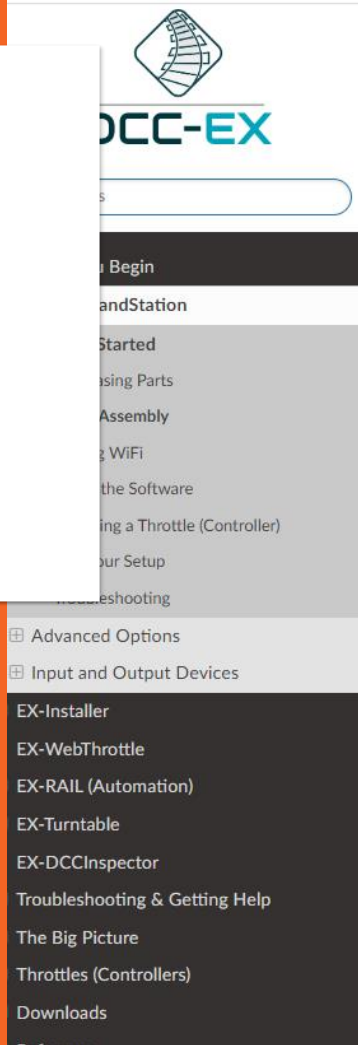
    Cut the VIN trace

→ **Add Wifi Shield**

Figure 6 *Line up left side first*

c. Just align them and start to push them in but don't push them all the w
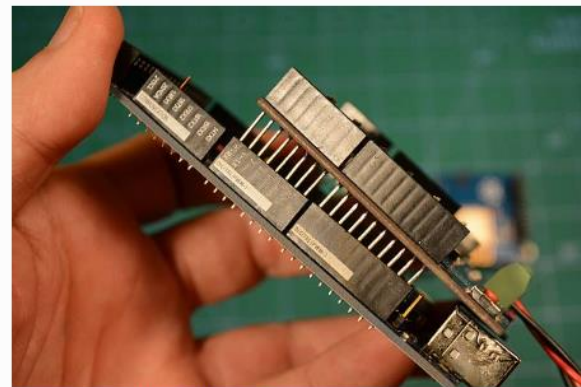   Use your fingers to try to push the pins to get them to all go into the h

Figure 7 *Get all the pins started*

d. Do the same on the other side.
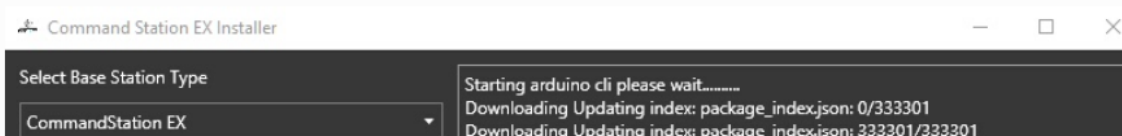   Get all the pins aligned and start to press gently to get them into the h

Software

→ **Go to Install the Software**
→ **Download and Run EX-Installer**

2. Download and Run EX-Installer

- Download the EX-Installer app
  depending on your computer's operating system it will automatically determine
- Extract the downloaded **Installer** into its own folder with your favorite unzip pr

- For Microsoft Windows:
  - Open File Manager
  - **Run** `exInstaller.exe`

- For Mac OS or Linux:
  - Open a terminal window and navigate to that folder
  - **Run the installer with** the following command: `./exInstaller`

- You will be presented with the following screen...

3. The EX-Installer Window

Command Station EX Installer

Select Base Station Type

CommandStation EX

Starting arduino cli please wait.........
Downloading Updating index: package_index.json: 0/333301
Downloading Updating index: package_index.json: 333301/333301

exInstaller

Select Base Station Type

CommandStation EX

Select Board Type

Mega

Select Motor Shield

Arduino Motor Shield

Select COM Port

(COM5, Unknown Board)

OLED/LCD   Network   **Wifi**   Ethernet

Enable Wifi ☑   Don't Touch Wifi Config ☐

Wifi SSID

Your network name

Wifi Password

Your network passwd

Wifi Channel

0

Refresh Ports

Compile and Upload

Starting arduino cli please wait..........
Downloading Updating index: package_index.json: 0/562510
Downloading Updating index: package_index.json: 562510/562510
Updating index: package_index.json download complete
Downloading Updating index: package_index.json.sig: 0/543
Downloading Updating index: package_index.json.sig: 543/543
Updating index: package_index.json.sig download complete
Downloading Updating index: package_sparkfun_index.json: 0/92692
Downloading Updating index: package_sparkfun_index.json: 92692/92692
Updating index: package_sparkfun_index.json download complete
Updating core libraries index..............Core Library indexes updated
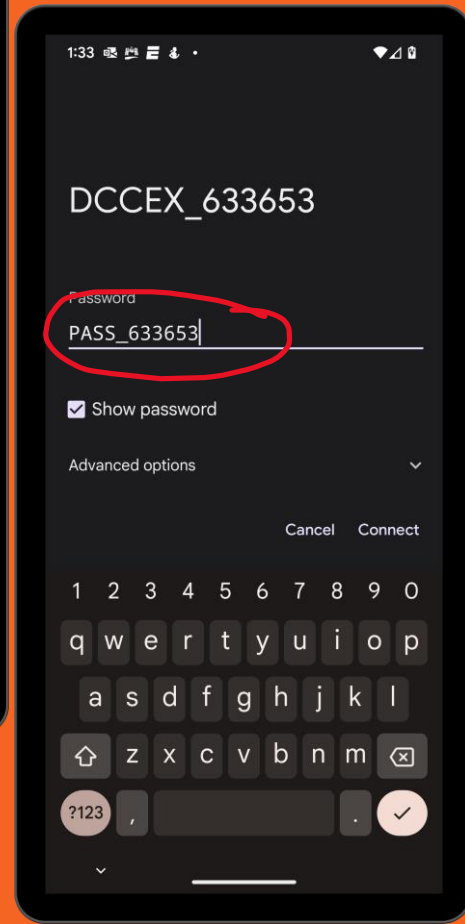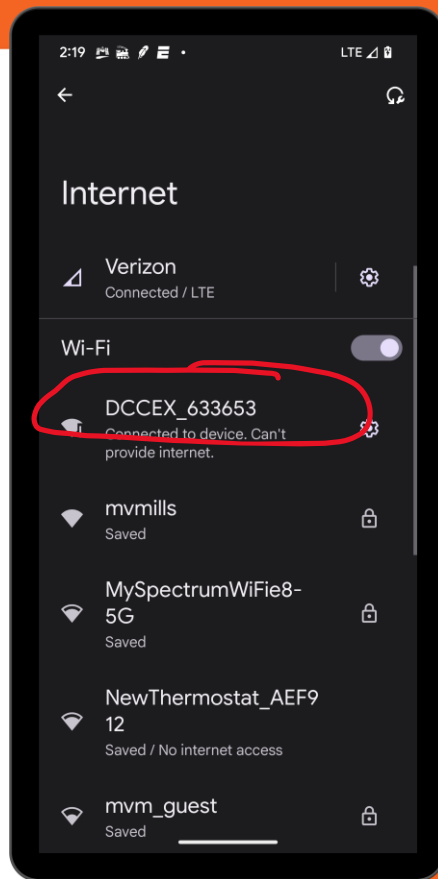Updating libraries index....Libraries Indexes updated
Arduino CLI initialized
Checking for new update
You are using the latest CommandStation-EX

Wifi access *(defaults)*

→ **Creates new network DCCEX_nnnnnn**

→ **Password is PASS_nnnnnn**

→ **Connect your phone**

→ **Open EngineDriver**

→ **Select DCCEX_nnnnnn from Discovered Servers**

→ **Enter Loco address and Go!**

Questions??

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