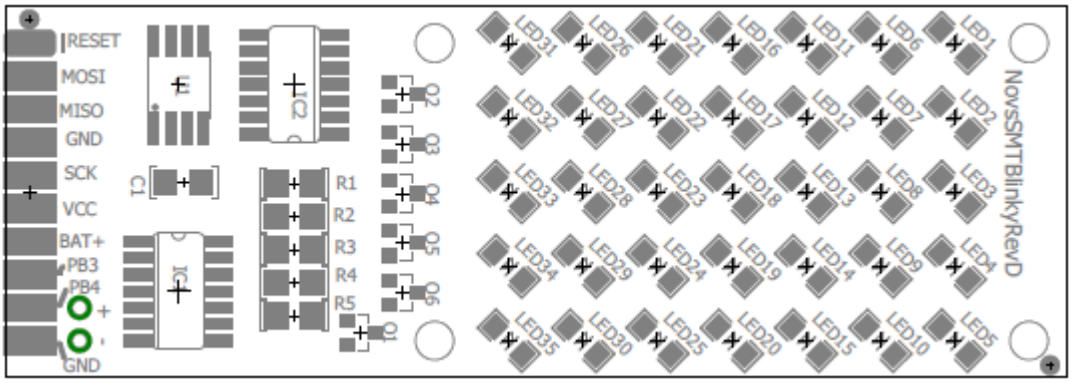


Nova SMT Blinky

Revision D

https://github.com/cogwheelcircuitworks/NovaSMTBlinky

Nova SMT Blinky is a 5x7 LED dot-matrix display board. It is used in kit form to teach surface-mount soldering classes. There is an assembled version as well.

Nova SMT Blinky uses an Microchip ATtiny 85 Processor. It can operate from 3 1.5V batteries or a 5 volt supply. It can be driven with either 5V or 3.3V sytems.

Nova SMT Blinky comes with firmware which allows it to be used as a smart display peripheral with a host system. There is a bar-graph mode. There are two dot-matrix character sets – 5x7 for one character, or 3x5 to display two characters side-side. There is also a raw mode where each individual led can be accessed.

Demo Mode

When supplied just power, **Nova SMT Blinky** will come up in 'demo' mode, showing off its various capabilities and special effects.

Driver Library

An Arduino-compatible library is available which can be used drive **Nova SMT Blinky** as a display peripheral

Source Code & Schematics

For people who would like to program **Nova SMT Blinky** directly, source code is included, which can be loaded into the Arduino IDE along with 3rd party support for AtTiny. New firmware can be flashed using a Tiny AVR Programmer available from SparkFun. Schematics and Eagle CAD files are also included.

Using Blinky Stand-Alone

Nova SMT Blinky has a demo mode which is fun all by itself. Simply attach a 5V supply to the **VCC** pin along with a ground connection to **GND.** When it powers-up, it looks to see if the **MOSI** pin is being pulled down to ground. If it is pulled high or disconnected, demo mode will commence.

Using Blinky as a Peripheral

There is an arduino-compatible driver located under **software/libraries/NovaDotMatrixDriver/**, in the github repository. Copy this to your Arduino IDE's libraries folder and restart the Arduino IDE. You will then be able to navigate to **File -> Examples -> NovaDotMatrixDriver** and load the example sketch.

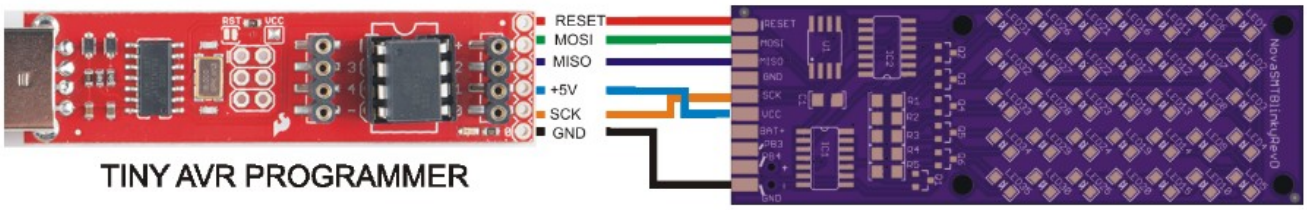
At the top of the setup() function, note the pin assignments for **clk_pin** and **data_pin.** Attach **clk_pin to** to **Nova SMT Blinky's SCK** pin. Attach **data_pin** to the **MOSI** pin, along with **5V** and **GND.** When the example sketch is started and **Nova SMT Blinky** reset, the sketch will run through various demonstrations.

The sketch uses 'bit-bang' mode, so you should be able to use **Nova SMT Blinky** with any digitial pins of any Arduino-compatible processor.

Hacking on Blinky Software

Source code to **Nova SMT Blinky** is available under **/software/libraries/NovaDotMatrix/** in the github repository. You will need a **SparkFun TinyAVR Programmer.** You will also need to install support for the Attiny into your Arduino IDE. Sparkfun has an excellent tutorial covering everything. Google /SparkFun Tiny AVR Programmer tutorial/ to access it.

Here is the hookup diagram:



Hardware Hacking

Schematics, board layout and Eagle CAD files are located in **NovaSMTBlinky/hardware/RevD/** in the gitbhub repository.