20150920 Arduino Diagnostic LED Display Module Project

This is a simple project I completed to use with my TCT (Trash Can Transport) robot prototype. I needed diatnostic lamps. Turn Right, Turn Left, Link Syncronized, Transition Detected…….etc.

I used one of those small cheapo colored breadboard for this project, some ribbon cable, and various resistors and LEDs from my junk pile.

You can get LED in a DIP pack, but I wanted the colors I wanted.

e.g. boat/aircraft colors. port=red=left, starboard=green=right.

A male-male ribbon cable with 9 lines (these come in bundles that you can divide into the size you want). One lead is used as ground and 8 are connected to the outputs of your Arduino. I used standard breadboard jumpers, but you probably should use custom cut wire for this (the prefab jumpers stick up to high). There are a ton of ground jumpers.

Next resistors, What values should I use. You might need a blindfold for this. I started with 3.3k surplus resistors for mine and ended up supplimenting with some 2.2k (ran out of 3.3K). You should be pretty safe with either. Some have LED testers. I use this for my LED tester. In your arduino code turn ALL your LEDs on and Off during the STARTUP method with an appropriate delay in between.

Wiring the breadboard: Every other lead should be an Annode or Ground for an LED on one side of the bread board. On the other side of the breadboard divider you will have resistors with leads reaching across the divider. The ribbon cable is connected to the “resistor” side of the divider with all pins connected to the end recepticle and all aligned with no spaces. The resistor have to align with the ribbon connectors on one side and the anode of the LEDs on the other sice. This means the resistors with have to be routed from the single space side to the double space side (LED side) and will be at an angle. (I routed my wires such that they went east and west and the resistors were north and south like you would see on a schematic. This seems to hold the resistors and wires in place well (may want to consider putting insulation on the resistor leads).

LED placement. As I said, every other recepticle on the LED side with be an Anode or Ground. I insert the LED leads into the 2nd or 3rd rows from the edge and fold them down using a special procedure. I found that folding LEDs down on the breadboard was not a good thing (the leads entering the breadboard should be vertical with the board). If you fold them on the board the leads tend to be at an angle and they WILL COME LOOSE. I cut and prefold each LED such that the rear of the LED is against the breadboard. This helps stablilize the LED. When I have compelted and TESTED the LED arrangement I glue the tops of the LEDs together using Bordons professional glue (You could use Bordons white school glue). You probably want to glue the LEDs to the breadboard too. This glue is not like superglue (It will come off) so rearranging the LEDs is possible (for your color preference).

I should have photos added to this article by the time you see it.

These small colorfull breadboards seem to fit on the Mega 2560 breadboard shield and kinda wedge into place.