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HOME

I was totally new to midibox and electronics and had limited midi exposure. I still have little idea (I will state incorrect info - please correct me by putting your name and the correction beside it).

Coming across this site was exciting because an application that I couldn't find in retail was a possibility here. It was still very daunting as I didn't even know the basics.

My intention is to scribble down information and suggestions, through a step by step approach to building an official project. Once the information is written, I'll make an effort with presentation.

This is basically written for the people with very limited electronics background like me.

MIDIMON

The first project I am attempting is the MIDIMON. A simple device that shows received midi information on an LCD screen.

Link to MIDIMON :

- http://www.ucapps.de/ [1] (scroll down the left hand side and under MBHP[2] projects, click on MIDIMON).

Things you need to know to create the MIDMON are:

- What components are required and where to get them.
- Midibox background and basics.
- How to solder.
- How to use a digital multimeter.
- Some basic electronics knowledge.
- How to connect a midi cable to a PC.
- How to download and install a new program.
- How to troubleshoot.
- How to search the forum.

WHAT COMPONENTS ARE REQUIRED AND WHERE TO GET THEM

You will need to order the following from SmashTV[3]:

- 1 core kit (item 2) with PIC18F452 - PIC ID header 0000 0000 0000[4].
- 1 Female SIL crimp connector (item 25).
- 2 10 pin female DIL IDC connector (item 33).
- 1 16 pin female DIL IDC connector (item 32).
- 0.5m 10 pin ribbon cable (item 34)
- 0.5m 16 pin ribbon cable (item 35)

You will also need miscellaneous components from elsewhere[5]:

- A bread board for the extra resistors and switches.
- 8 10kOhm resistors (try get 1% tolerance - gold band at end).
- 0.5m of insulated wire to connect switches and resistors to the bread board.
- A 9V 500mA AC adapter. Don't worry about the connection end type for now.

The following equipment is needed for preparation and soldering:

- 0.7mm solder.
- Soldering iron (no greater than 25 Watt).[6])
- Soldering iron stand. (A coil sitting on base to sit solder in while not working with it)
- Sponge (can use dish cloth sponge from kitchen)
- 2 third arms. (You can use one but I liked using the second to keep the wires taut while soldering.)
- nose pliers. (needed to bend component wires)
- side-cutters.
- desoldering gun.

The following equipment is needed for testing:

- Digital multimeter. (Cheapies are fine generally).

The following equipment is needed for the casing:

- User preference and flair[8]. Also, I haven't got this far yet

MIDIBOX BACKGROUND AND BASICS

From what I gather (I'll rejig when I understand better):

- Midibox is the creation of Thorsten Klose which standardises a series of DYI (do it yourself) midi applications, making them accessible to anyone.
- He has developed a series of modular systems which can be connected in varying ways to create useful midi applications.
- Code required for the PIC (programmable integrated circuit or microchip. It is the brains of the application) to drive the application has been developed for a series of “official” projects. It is available for anyone to download and use (non-commercially).
- There are 3 main areas in the midibox community:
  1. http://www.ucapps.de/ [1]. This is where all the downloadble applications are stored and is the base of midibox.
  2. Midibox.org. This is a wiki and a house for information. All information here is accesible to edit and has been added to by the midibox community over the years. Anyone can create a new page and link it to any other page in the wiki - see dokuwiki
  3. Forum
- One thing I reckon you shouldn't do is expect to have something done quickly. Sure there is a good chance it may happen first time but also just as likely there will have to be some sort of troubleshooting. With this being said, it would be wise to go through the entire links of the Midibox.org page. I say this because the when you are on the verge of completing something, the last thing you want to do is spend days sifting through info so you end up doing what I have done and jumping on the forum. So expect slow turtle and do the reading now. Know that there

is a lot of reading a learning to do. Conversely there also needs to be a balance between reading and doing. So perhaps do what you can but if you can't do, expect to read for days/weeks.

HOW TO SOLDER

- There are many videos on youtube that give good visuals - me to provide link.
- Search the internet and soldering and teachiques.

A few things I found (will fix up later):

- Keep the sponge wet and cold. The tip is cleaned by the steam.
- Keep tip shiny. Heat transfers better (Maybe if it is black, it is too hot)
- Ensure good contact with both the board trace (word?) and lead.
- Around a second after contact, place a small amount of solder between the iron and the lead
- When you see a slight change in the material (melting, about 2 seconds after contact) push the solder into lead and trace hole on the opposite side of the iron.
- If your iron is on the joint for more than 2 seconds and the metal isn't flowing, take it off, clean the tip again and wait 10 seconds. Aim to have the iron on the board no longer than 3 seconds.
- You can use a metal clip to defuse some of the heat. Excessive heat for too long will damage certain components. (this is where the 2nd 3rd hand is handy - metal grips wire and defuses some heat)
- Lead's bad for you. Don't suck in too much.
- Go slowly, even one leg at a time for fragile components (although getting a little run going seems to work fine at times - it's just there won't be the heat defusing clip attached to all of them)
- After every group of solders, check, with a multimeter, every connection through to a common (same voltage - zero resistance) hole on the board. That is, in resistance mode, place a tip on the wire and the other tip on the connecting board hole via a trace. Check with the schematic to find appropriate testing points.
- While you are at Jaycar, buy 3 kits and practice your soldering. When you finish one and it is functional, then start on your core.

HOW TO USE A DIGITAL MULTIMETER

- Again search youtube . me to provide link
- Black lead - in common port (COM) and to placed closest to the negative side of voltage source (Vss) or ground.{ Get confused about ss. Stands for source or electron flow (as opposed to conventional flow + to -) or surplus of electrons?? Source destination. or surplus and deficit/deficiency or electrons ??? Or charge?? Will have to reread some more text books.}
- Don't put the red lead in the amps socket (only the ohms and volt socket). Rarely check for amp and can do damage - only check current if you disconnect the wire you are testing the current so DMM is run in series with circuit.
- If you don't have a continuity tester that beeps then just use the resistance setting and test for close to zero resistance.

SOME BASICS IN ELECTRONICS

- Read volume one of http://www.allaboutcircuits.com/. It'll take a while. I'm still going and need to go back and read some bits

(1) uCapps - Microchip Applications
(2) MBHP - Midibox Hardware Platform
(3) SmashTV - website http://www.avishowtech.com/mbhp/buy.html
(4) PIC ID header - You only need different if you plan to link PIC's together
(5) Jaycar will have most of the components required. They may not have the 4×20 LCD.I bought mine on ebay from http://stores.ebay.com.au/square-man. You can source the extra information from anywhere. Some other online retailers in Australia I have heard are good are Oatley and Altronics.
(6) The finer the better. Probably get a regulated temperature one (I can't as I haven't much experience. There are threads on the forum[(7)])
(7) Midibox forum - http://www.midibox.org/forum/index.php
(8) See the 'Midibox of the week' thread for examples:
http://www.midibox.org/forum/index.php/board,15.0.html

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