Tools

Software Development

Please see the software page for your PC Operating System of choice.

Hardware

You don't absolutely *need* to have all of these things, but it sure helps! Using a tool for purposes other than those for which it was designed can be just a little more difficult, or downright dangerous. Please be safe :)

Safety

- Workbench - Protect your house, have a proper work area
- Safety Glasses - Protect your sense of sight
- Ear plugs/Ear Muffs - Protect your sense of hearing
- Face mask - Protect your lungs
- Fire Extinguisher - Don't let your soldering iron start a fire you can't put out
- Fire Blanket - As above
- Storage Unit - Put your tools and components somewhere safe
- Small Plastic Cup - Somewhere to put things temporarily. Don't leave your kit lying around.
- Soldering Smoke Absorber/Ventilator - MMmmm, Lead smoke. Mmmmm, Cancer. Mmmm, Insanity. Mmm.... I think not.

Soldering

- Soldering Iron - Temperature controlled
- Soldering Iron Stand - Put it where it belongs
- Soldering Iron Tip Cleaner - Take care of your tools
- Solder - Good quality solder for good quality joints, 63/37 Eutectic
- Tinning Block - for taking care of soldering iron tips
- PCB Holders - Make soldering easier and cleaner
- Desoldering Braid - For removing chips from inferior boards, to insert in you MBHP ;)
- Desoldering Pump - As above
- Breadboard - Prototyping

Electronics

- Multimeter - For testing circuitry. RS232 connected Autoranging DMM

- Oscilloscope - For testing signals. Dual trace
- Power Supply - Regulated lab power supply
- Digital Camera - For taking snaps to share with other MIDIBoxers
- Mini Torch - Let there be light. A AA Cell MagLight in your mouth means you get perfect light

Drilling

- Rotary Tool
- Drill Press - For accurate drilling of PCB's and faceplates
- Drill bit set
- Router bit set
- Nibbling tool - for making odd shaped holes (Careful! These can be savage)
- Reamer - for making odd shaped holes
- Center punch - For marking the location of holes to be drilled and scribing lines on metal

Abrasive/Cutting

- File Set - Flat, round, half round, rasp and needle
- Hacksaw - For cutting solid objects
- Spare Hacksaw Blades - For use by hand
- Coping Saw - For cutting holes in cases
- Razor Knife - Stanley/X-Acto, etc. NOT for use on plastic cases unless you have a death wish

Measurement

- Flexible Steel Ruler with Cork backing - From Arts stores. An excellent idea that I stole ;)
- Calipers - For measuring drill bits, shaft diameters, and hole diameters
- Clamps/Vices - Various sizes and shapes, for holding things still while you drill/saw/bust them up

Trimming and Fastening

- Wire Strippers - For stripping insulation from cabling
- Pliers Set - Various Sizes and types
- Side Cutters - For trimming componenet leads
- Screwdriver Set - Various sizes
- Spanner Set - Various sizes, including shifter spanners
- Socket Set - Various sizes
- IC Puller - Little tool for pulling IC's from sockets
- IC Placer - Little tool for putting IC's in sockets, spreads even pressure over all the pins
- Claw - One of those little pens with a three-fingered claw for grabbing loose bits from where fingers can't reach
- IDC Crimping Tool - Because doing it with pliers sucks
- Electrical Tape - Too many uses to list

Accessories

- Mirror - Little mirror on a telescopic shaft for peeking where your eyes can't reach
- Compressed Air Can - For cleaning stuff by blasting off dust
- PC/Mac - For surfing ucapps.de, the forum, this wiki, etc, for printing stuff, for talking to the DMM
- Internet Connection - You will need a fairly high-speed connection for downloading instructional images, PDFs, tools, etc. 56kbps will probably not be enough. I recommend 128kbps ADSL at the very minimum. I've got 12Mb ADSL2+ which is the fastest thing available, and recommend it highly.
- Printer - For everything from quick reference guides to datasheets to documentation to PCB screens to.....

Lab Supplies

A few handy things to have around the lab for experimenting....

- a complete set of resistors,
- breadboard PCBs to mount hardware-parts
- sockets with screws (eg for DIN-buttons)
- set of capacitors (esp. those 104's)
- some additional switches (like power-switches)
- enough cables with connectors

Thoughts

Use the right tool for the job. Get all the tools you need. Don't be a cheapskate, get what you need. This doesn't mean you have to spend a fortune, but you will get what you pay for.

Be safe. Don't F*&% around with safety, tools, your workspace, etc - you can do anything from stripping a screw to killing yourself. Take every single safety measure available to you. Seriously, you never know... a tiny piece of scrap plastic can get flicked into your eye when you sneeze and leave you blind for life. There is absolutely NO need to be paranoid or concerned about this, PROVIDED that you don't be lax and you DON'T F*CK AROUND !

References

Thanks to these websites for saving me having to think about this:

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http://www.makezine.com/blog/archive/2005/12/makes_mostly_under_100_gift_gu.html

http://www.headwize.com/ubb/showpage5.php?fnum=3&tid=532

http://tangentsoft.net/audio/new-diyer.html

http://www.devrs.com/e/

http://www.streettech.com/archives_DIY/stToolkit.html

http://www.i-hacked.com/content/view/191/94/

http://tangentsoft.net/audio/

There are more, but that about covers it :)

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