Assembily of the Pi-Synth using the Discovery Synth PCB

1. Solder a 16 DIP socket for each of the two MCP3008 IC’s. Make sure that the sockets are soldering in the correct way (line up the dimple on each socket to the dimple on the silk screen. If you do not have sockets for the IC’s you can solder the IC’s directly to the board but be careful not to damage the chip in the process.
2. Solder in the LED’s (it is recommended that you use some sort of wire-to-wire connector schema) For LED1, the ground is on the outside while LED2 has the ground on the inside (sorry, that was not intentional).
3. Solder the two resistors next to the LED’s. The exact value is not too important something within the range of 150-200 will be good for your typical 5mm LED. The resistors can be soldered In either way as they are not polarized and will work either way.
4. Solder the remaining 12 resistors (for the buttons), these are a little tricky b/c the pads are so small, just make sure you heat the pad and wire properly before apling your solder to avoid cold joints. These resistors should be 10k if you are using standard pushbutton switches.
5. Solder a 10k trimpot to the top of the board so that the pot itself is facing inwards. Try to ensure that the trimpot is flush with a board and is not ‘hovering’ above the PCB. NOTE : you could instead breakout this control to a POT in which case solder some headers to these pads for the LED.
6. For the Pots you can either solder the connections directly to the board, use a wire-to-wire connection schema or simply solder headers to the connections. There is just enough space to accomidate standward 0.1” header pins and this is the most cost effective solution that gives you a hot-swapable design.
7. Solder one 2x20 female header upside down (so the header rests below the silkscreen on the PCB) making sure that the header rests evenly and does not tilt inwards or outwards. It helps to start with the four corners, check that everything is strait then fill in the other 36 pins.
8. Cut a 16 hole length of 0.1” female header from a larger strip and solder it into the “LCD” pads.