Maker Sender Key
Building hints

After assisting almost 100 makers at the NYC Maker Faire build their Senders, I have a few construction HINTS for building YOUR Sender.

Step 2.) Too much Super glue is BAD! Use only a drop or two. I prefer the gel style glue. Placing the MeSquares panel face down, adding the glue then placing the bare copper board on top keeps you from having to handle the little MeSquares board and potentially gluing it to your fingers! The bare copper board should be centered left/right over the Squares board with BOTH boards aligned along the top edge. Watch out that some Super glue doesn't ooze out the top and get to your fingers!!

Step 3.) Running the soldering iron a LITTLE on the hot side will make it easier to solder the pieces of bare copper stock. It will also make it easier to lift a little square pad from too much heat. Make sure your iron has a clean tip and a small puddle of solder before attempting to either tin or solder to the little squares. Get on the square, solder and get off as quick as you can in order to prevent overheating the little square pad and lifting it up off the board.

Step 6.) If you try holding the little KEY board while attempting to solder it to the two square pads, it can get pretty hot! Use something as a spacer at the bottom of the key to keep it off the base copper and then use a tool like a small screwdriver or pliers to provide a little down pressure to keep the KEY board from moving while soldering it to the two squares. Remember that the solder is on the underside of the KEY board so you will be doing something similar to plumber's sweat soldering to solder the key to the pads. I run the soldering iron tip quickly back and forth between the two pads to get them both hot enough to do the job.

Step 8.) The LED – lead needs to be soldered to one of the pads that the KEY board is soldered to. It is not clear in the picture.

Step 9.) Soldering the LED and the resistor lead together was a little problematic. Many Makers took too long and/or added too much solder to make the connection. Be quick here. If you do lift the pad, then you can simply move the LED + lead over one square to the corner pad and then use the 2 end pads as the resistor points.

Step 11.) You can add a little strain relief to the battery leads by drilling 2 small holes between the bottom corner pad and solder bead. Cutting the battery lead a little longer than shown, you could thread the 2 leads down through one hole and up the second before soldering them to the bead and square. You could also add some lead length and loop a little into the double stick foam tape during final assembly as another easier means for providing a little strain relief to the battery leads. They ARE a weak link when carrying the Sender around in your pocket or pack!

Step 13.) A couple of small daps of hot glue can also be used to afix the battery and Sender board together. I like the foam. Just don't use that VERY high strength stuff. You WILL need to change the battery sometime so a lower quality bonding strength is a GOOD thing here.

Take note of the distance you can get when using a fresh battery. As the battery wears down, the current through the LED will drop and the LED will then produce less light....so it will appear dimmer. Alkaline batteries will last longer. Lithium batteries are the ultimate in performance to weight (they are really light but pack a lot of power) but of course, they are also expensive. Stick with a good alkaline battery.

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