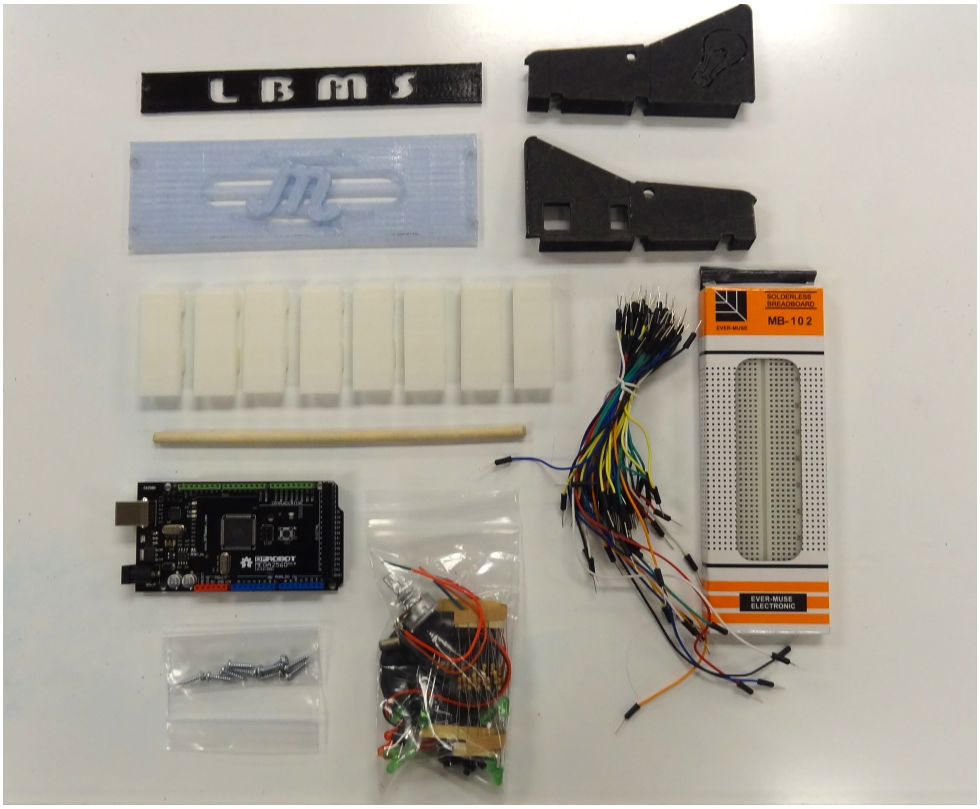
long beach maker society

BUILD Series 101: Buzzer Binkies and Buttons

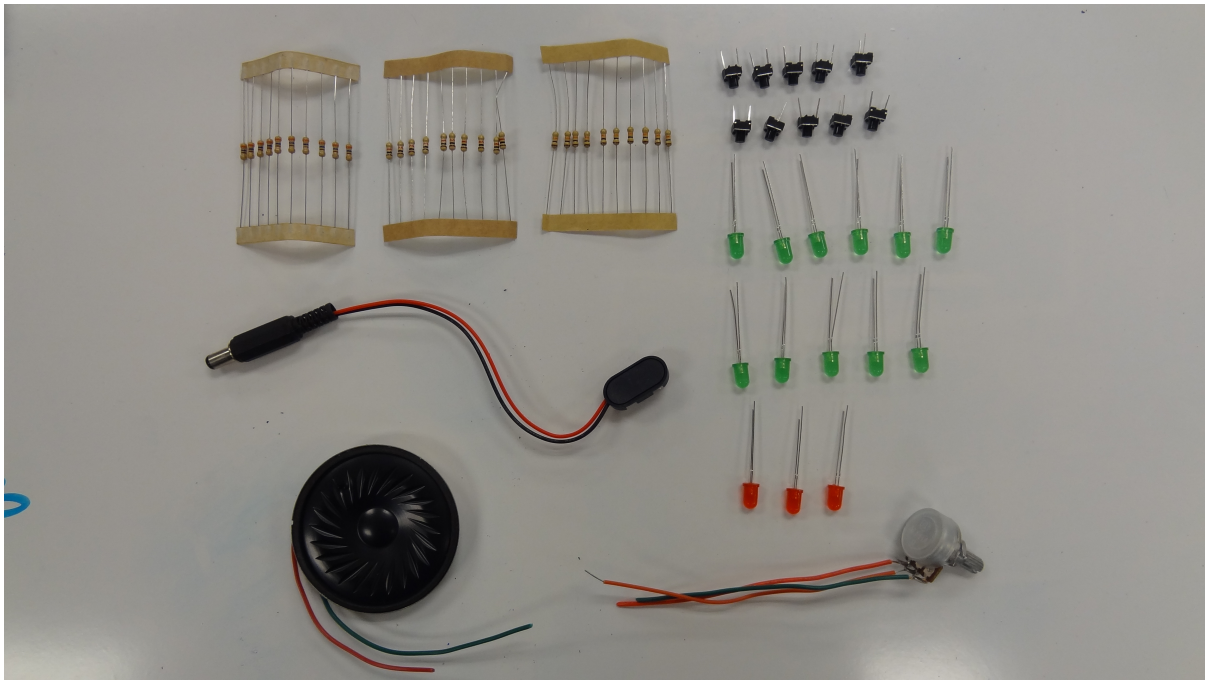
Build Instructions

October 13, 2012



Parts included

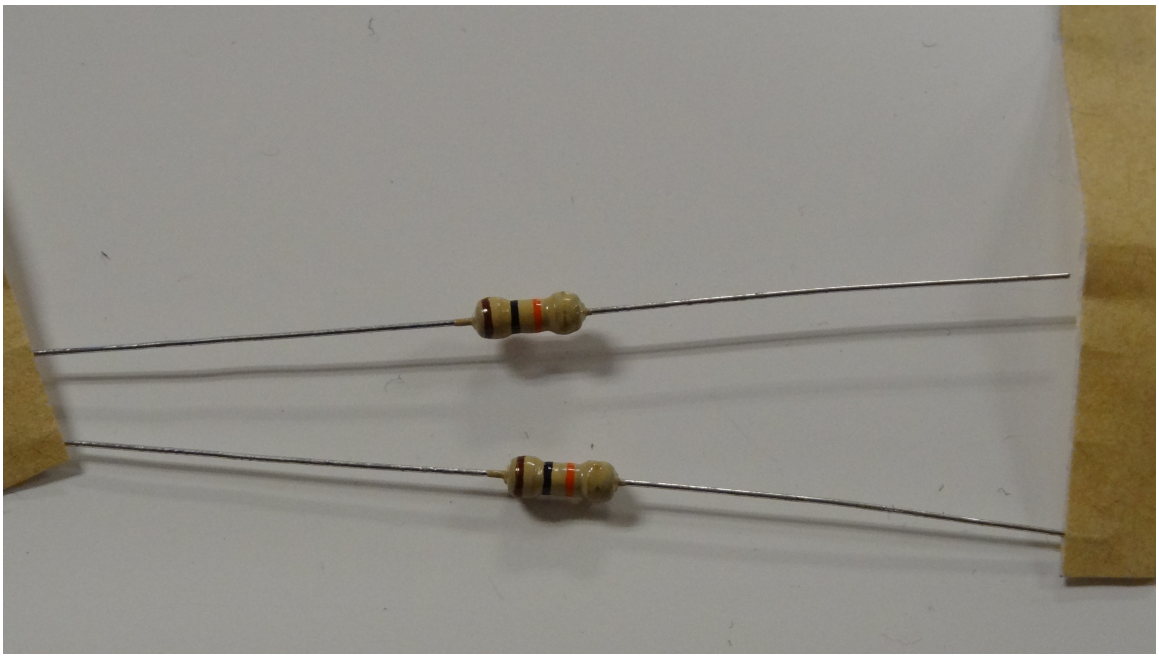
- 1x breadboard (830 tie)
- 8x tactile switch (through hole 2-leg)
- 8x 10k resistors + small assortment for adjustments
- 1x mini hobby speaker (2 inch)
- 1x 3mm red LED
- 8x 3mm green LED
- 1x assortment of jumper wires
- 1x 10k potentiometer
- 1x Arduino Mega 2560 Clone
- 1x 9V battery enclosure with male adaptor for Arduino



Electronic Components

Step 1:

From your electronic component bag take out the resistors with the following color code, (**Brown, Black, Orange, Gold**)



10K resistors

Step 2:

Shorten the ends of the resistors so they sit flat on the breadboard once inserted.
Be careful not to cut them too short!!!

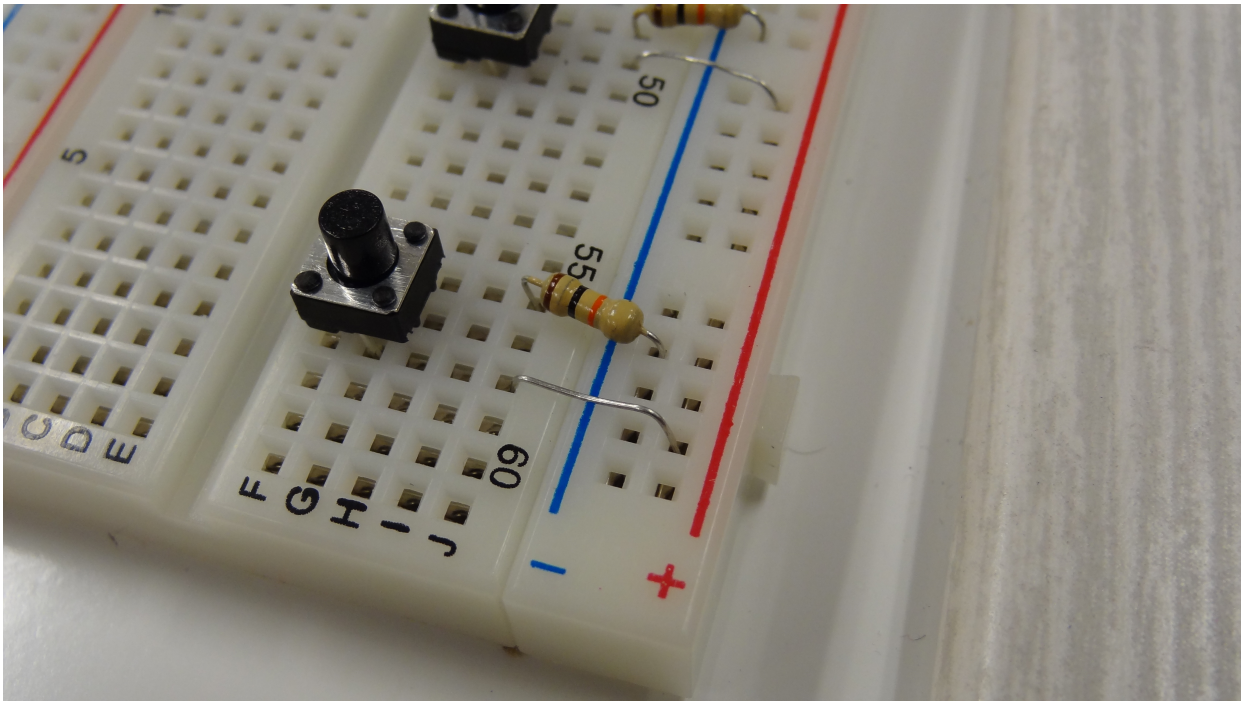
Beans

Step 3:

Use the clipped wire as jumpers; bend each end so they look like a staple.

Staple Jumper Wire

The parts will look like this once placed on the board:



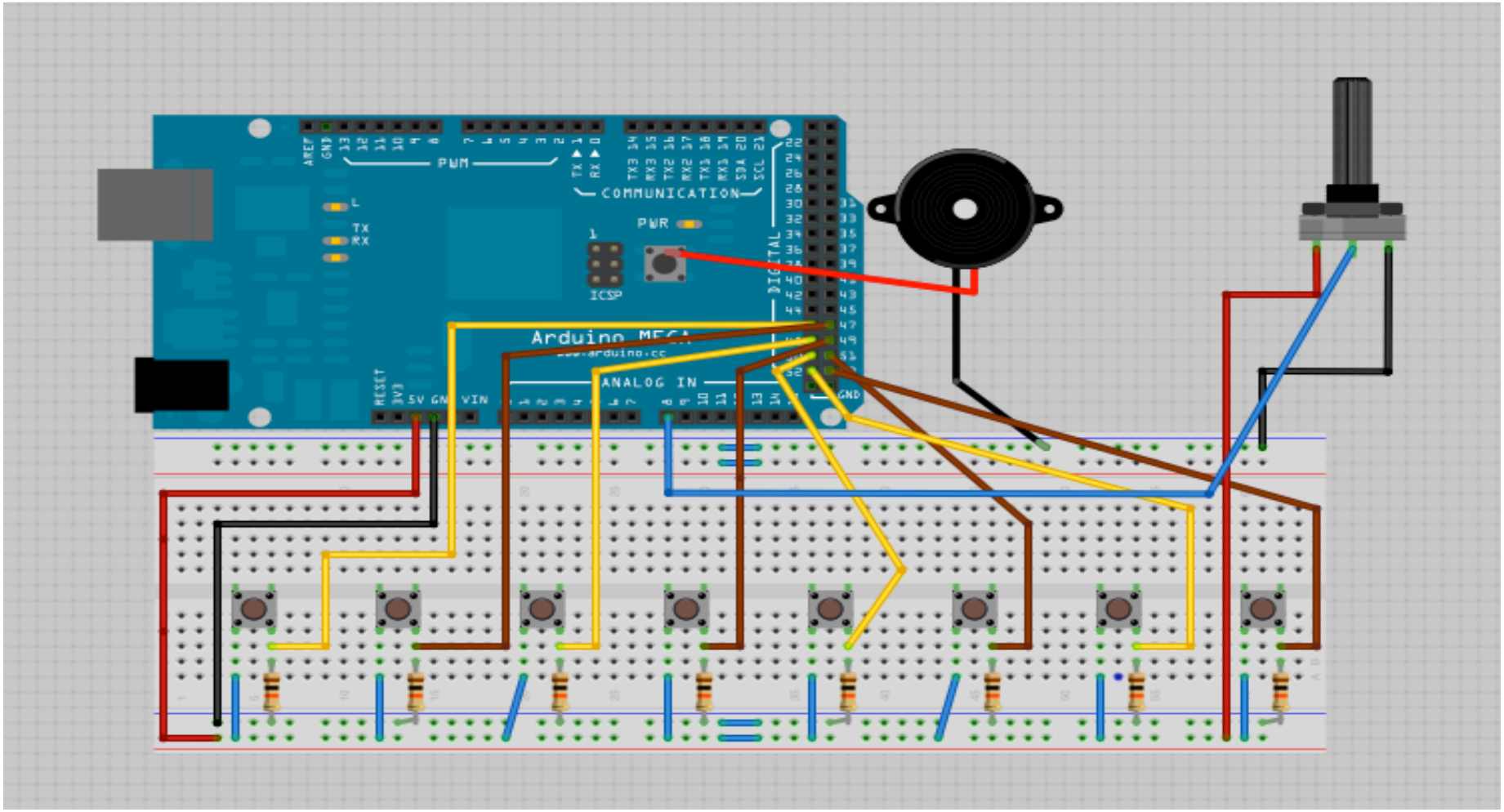
10K resistors connected to negative rail
Freshly cut jumper wire connected to positive rail

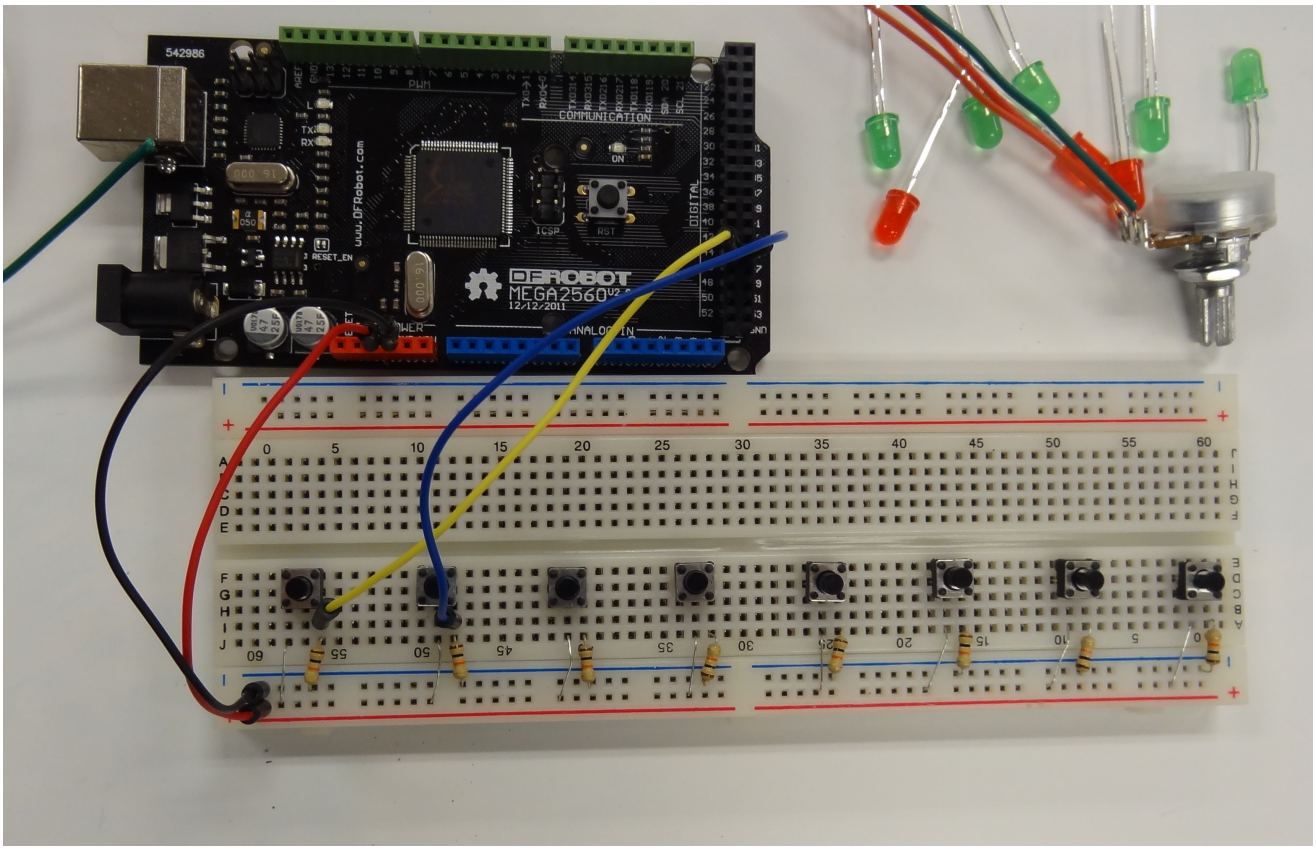
Next, you are going to be:

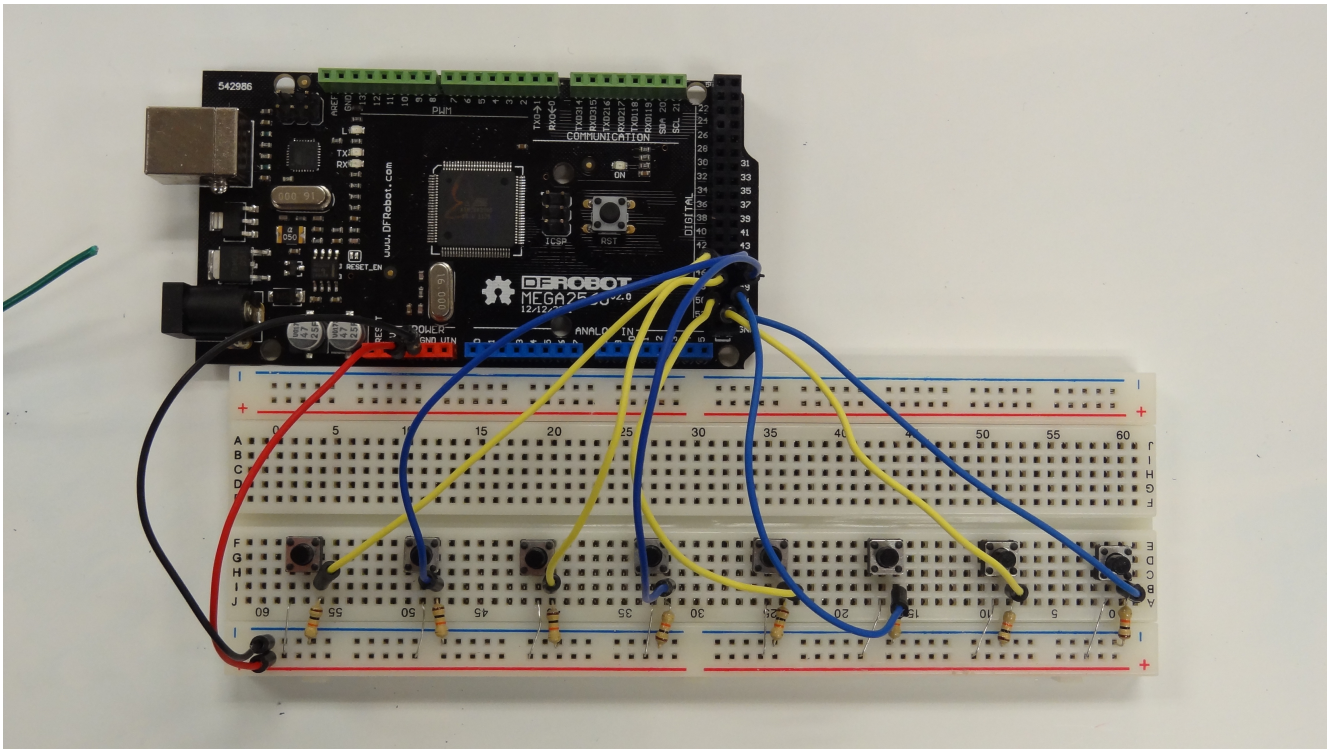
- Connecting your push buttons and resistors onto the breadboard
- Running jumper cables from the ports on your Arduino Mega 2560
- Connecting your speaker and potentiometer

Step 4:

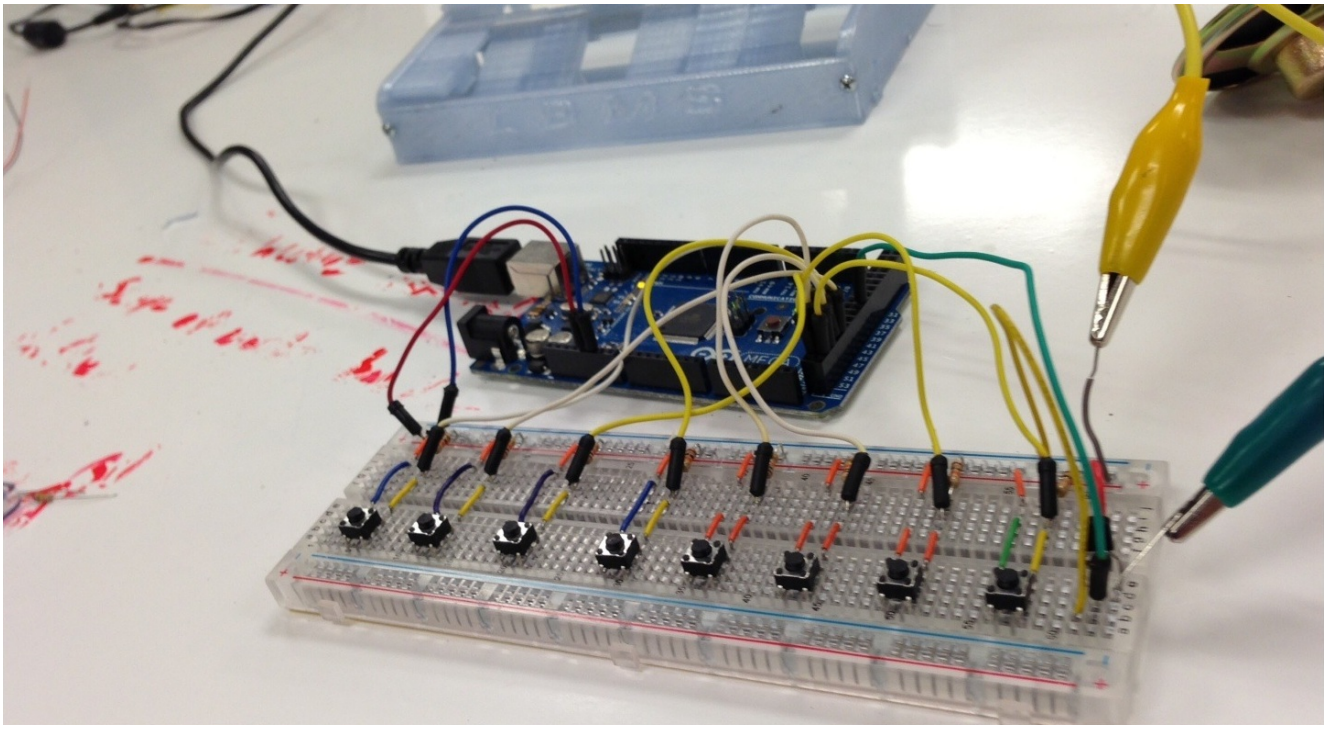
Follow the simple circuit schematic below to build your own circuit!







All wired up!

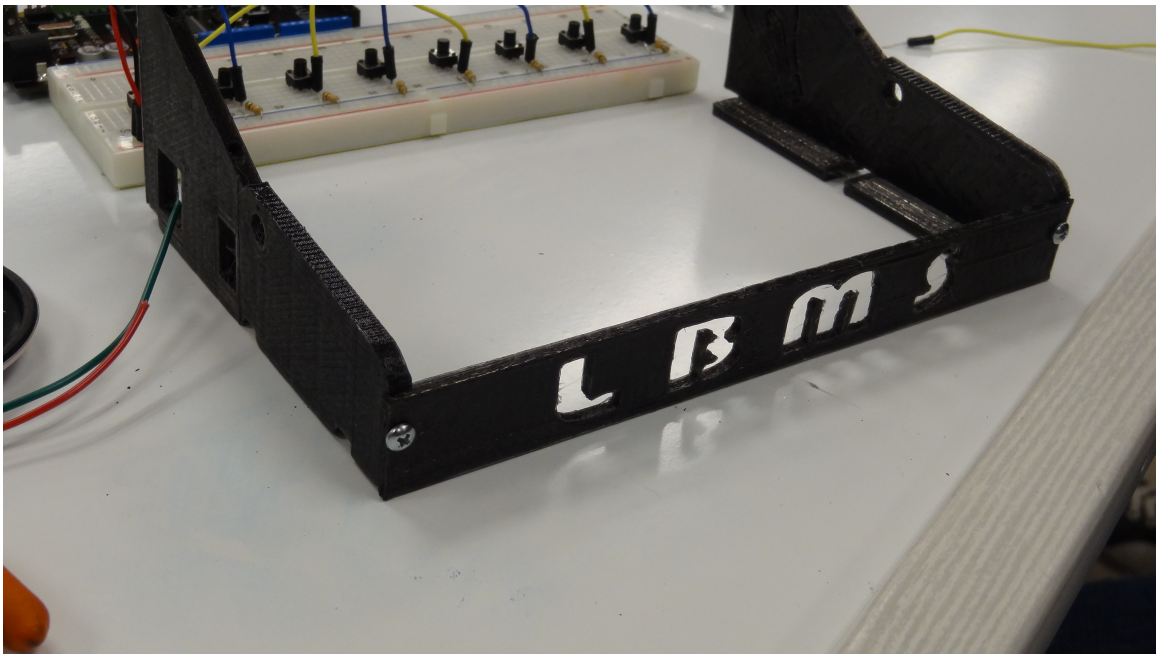


Next, we are going to upload our code to the Arduino to make sure our circuit is connected properly. This should be a breeze after Ben's Arduino Basics session in the morning. If all of your notes are playing correctly, you are ready to start constructing the body of your keyboard!

Step 5:

Use your Phillips head screwdriver to connect the front plate to both side plates. Make sure the side plate with the Arduino ports is on the left side of your keyboard enclosure, while the side with the LBMS light bulb is on the right.

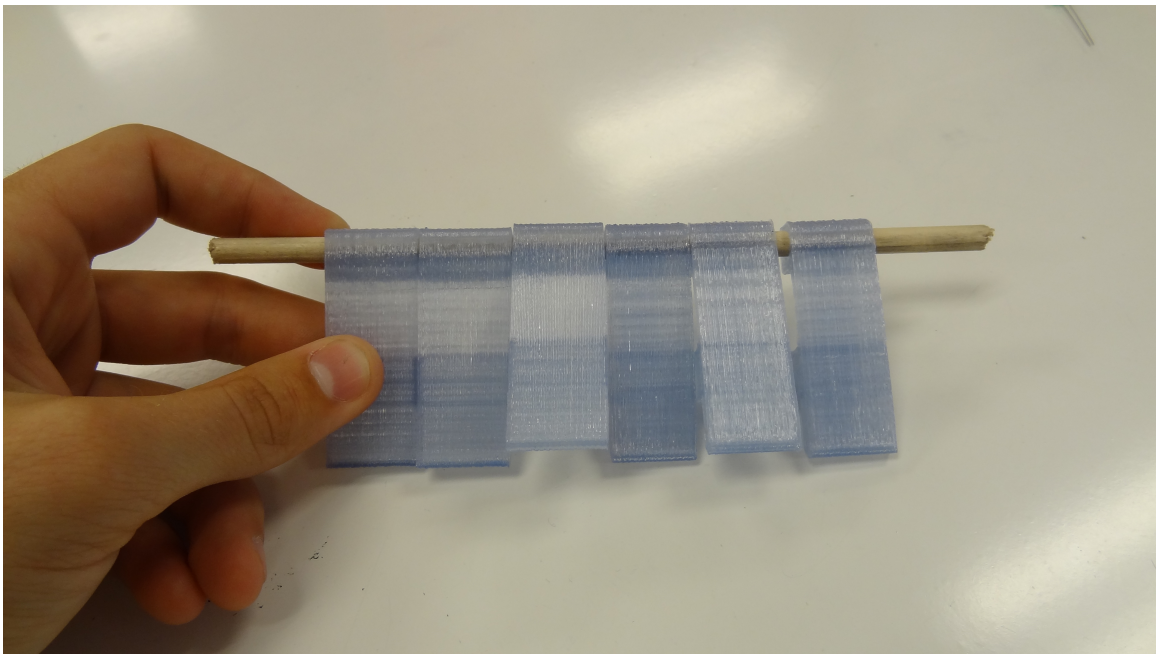
Screwing front LBMS plate to side plates



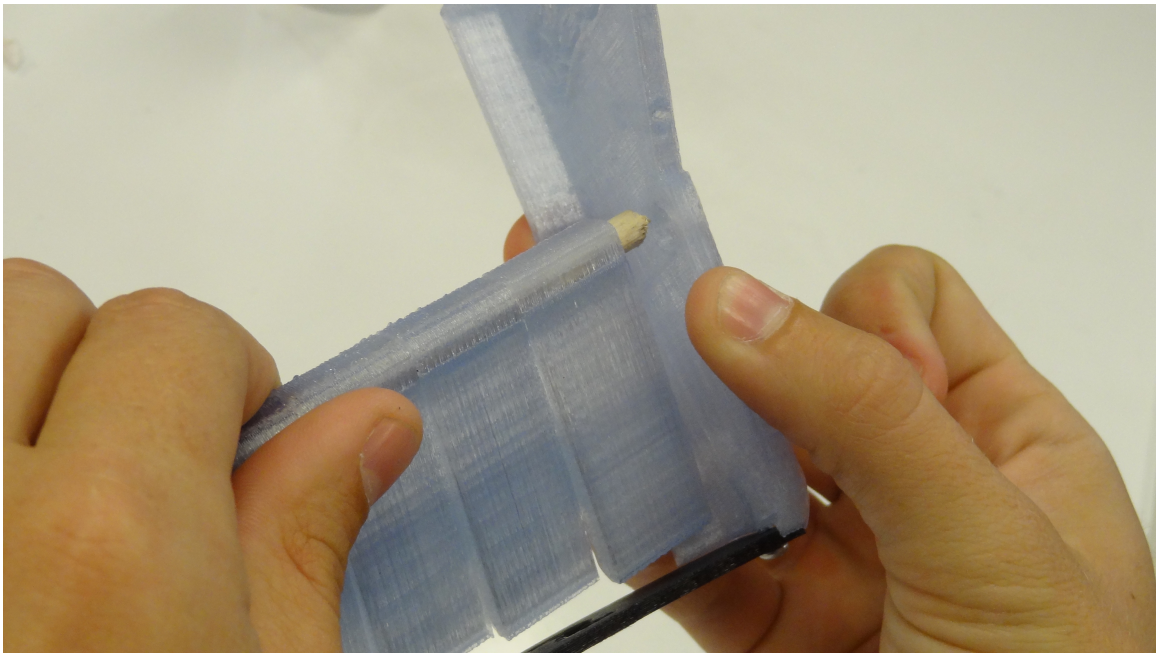
Front and side plates connected, looking REAL nice

Step 6:

Slide all 8 keys into the wooden dowel and then pop the 2 ends of the dowel into each sidewall of the keyboard enclosure.



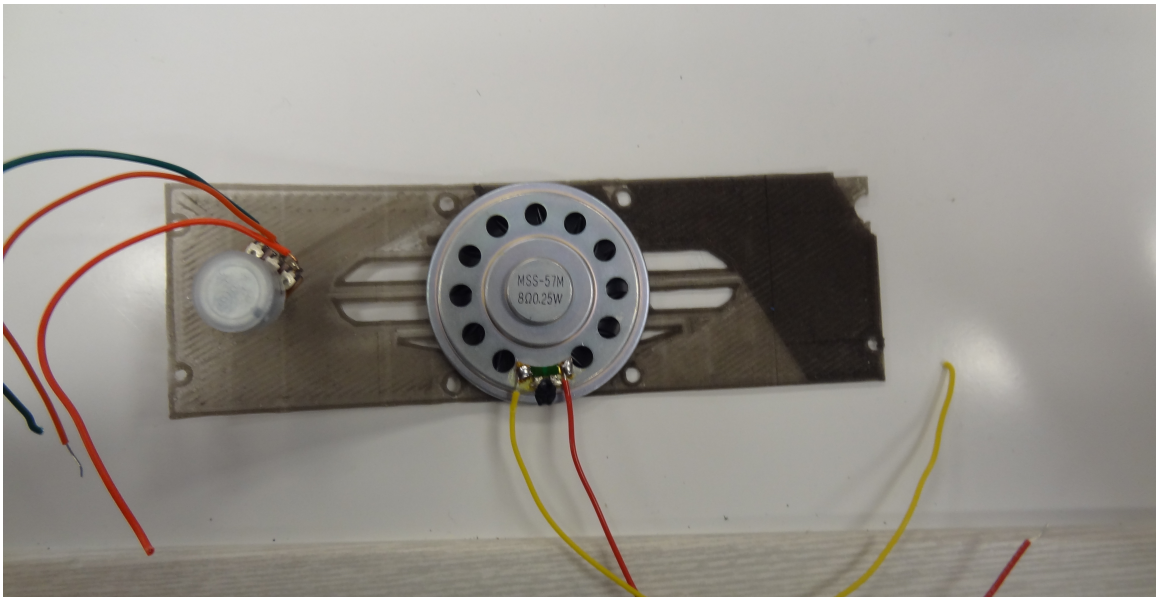
Sliding the keys onto the wooden dowel



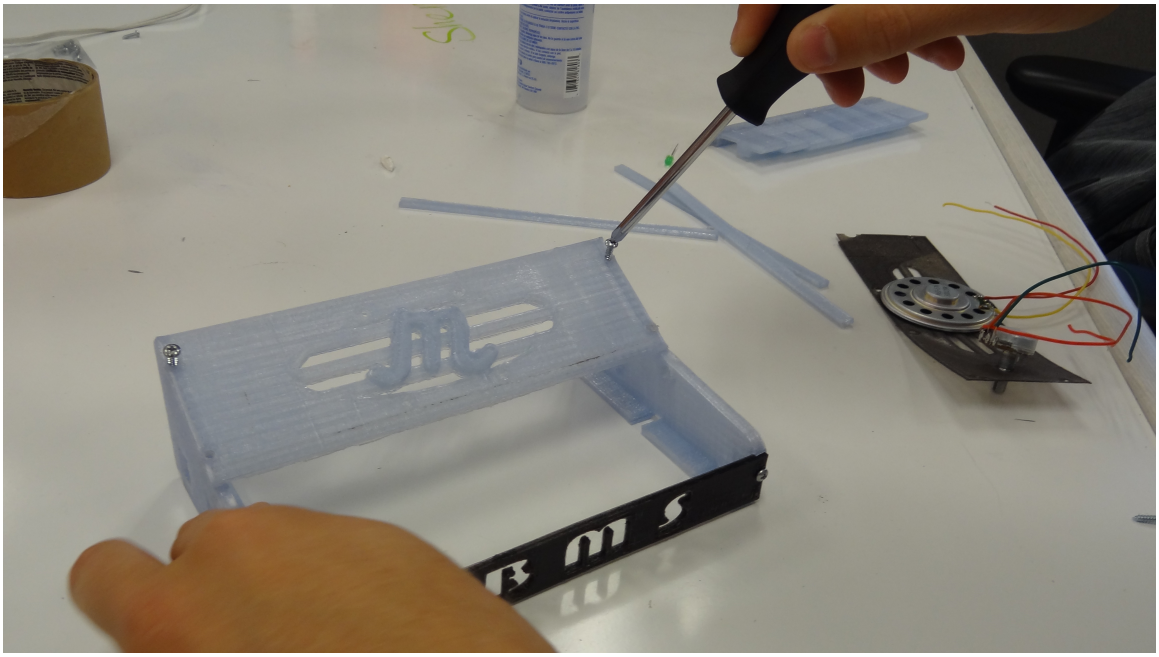
Popping dowel into place on keyboard enclosure

Step 7:

Screw the speaker to the inside of the grill plate and connect the potentiometer through the whole to the side of the speaker. Then screw the grill plate onto the top of the keyboard enclosure.



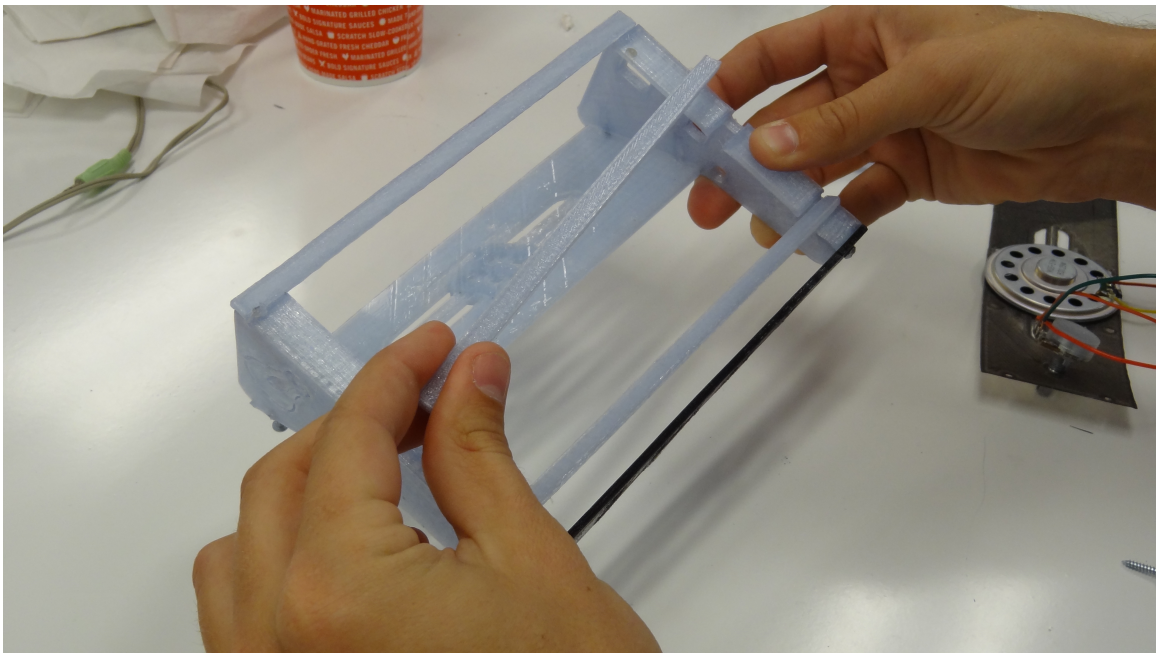
Potentiometer and speaker placement on back of grill plate



Screwing grill plate onto the keyboard enclosure

Step 8:

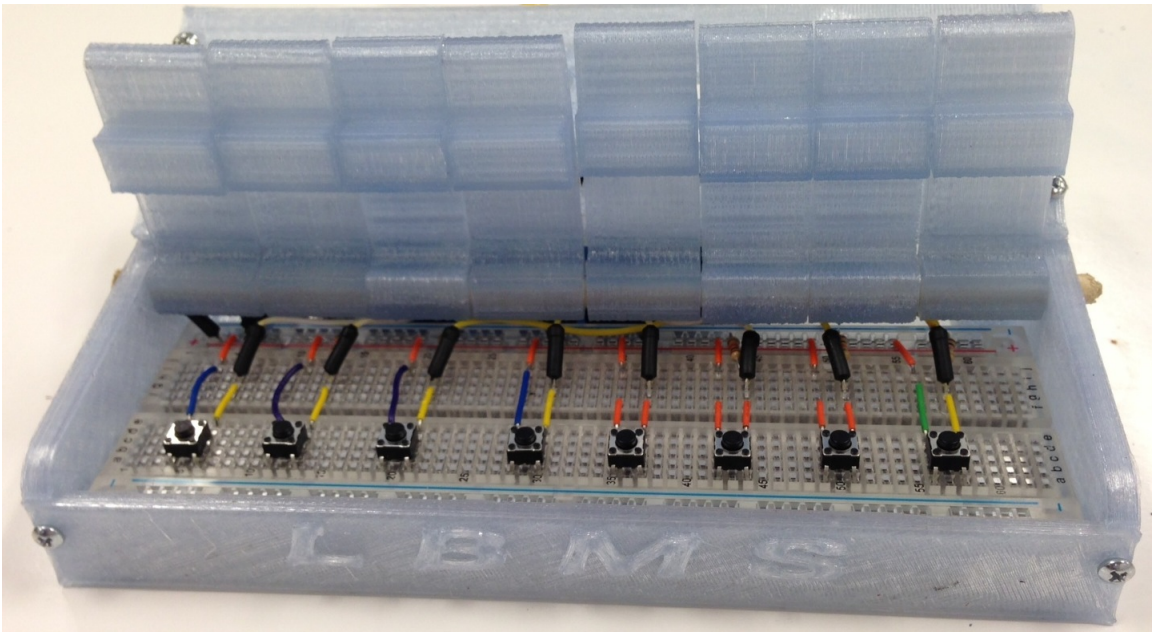
Use super glue to connect the bottom 3 support rails that will hold your breadboard and Arduino in place while you are jamming out and playing some tunes.



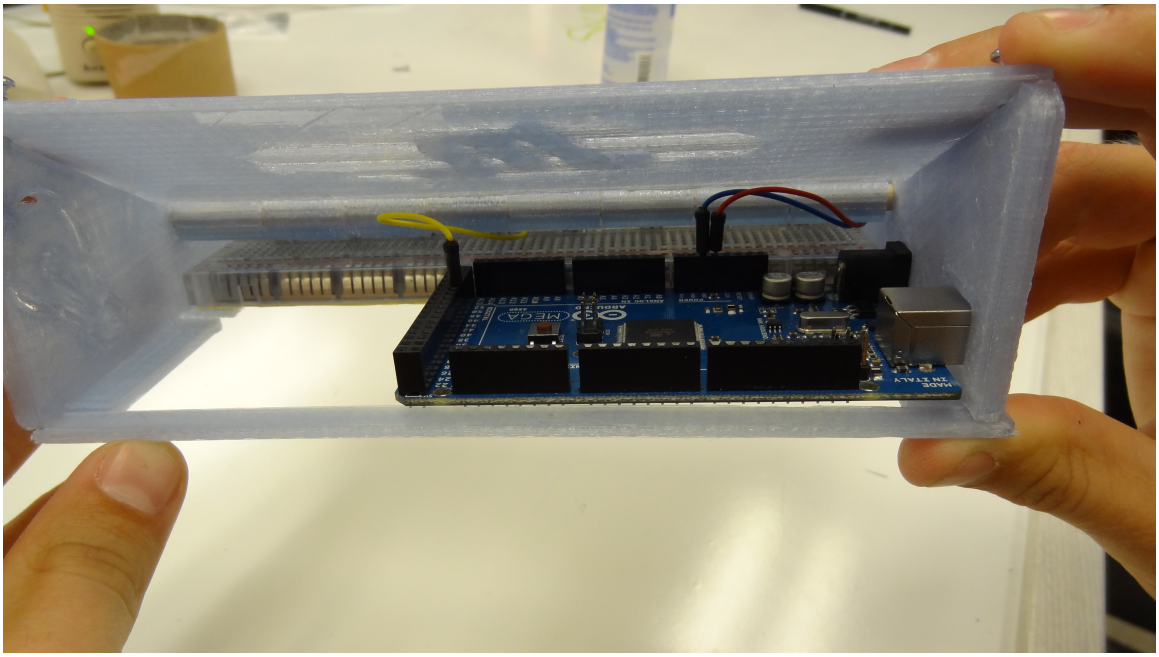
Snapping bottom rails into place

Step 9:

Now that you have finished building the body of your keyboard you're ready to insert the electronics. Gently slide the breadboard in first so the push buttons are aligned with the keys, then slide the Arduino in second and line up the ports with the left sidewall.



Breadboard inside keyboard enclosure



Sliding breadboard and Arduino into place

CONGRATULATIONS! YOU HAVE COMPLETED YOUR ARDUINO KEYBOARD!

NOW IT'S TIME TO PLAY SOME SONGS FOR ALL YOUR FRIENDS AND FAMILY. THANKS FOR PARTICIPATING IN *LONG BEACH MAKER SOCIETY'S* **BUILD SERIES 101: BLINKIES BUZZERS & BUTTONS**. WE ARE LOOKING FORWARD TO SEEING ALMOST ALL OF YOU FOR OUR **BUILD SERIES 3D: REPRAP PRINTERS** IN THE NEXT COUPLE OF WEEKS. IF YOU HAVE ANY QUESTIONS PLEASE DON'T HESISTATE TO CONTACT US THROUGH OUR WEBSITE AT LBMAKERSOCIETY.ORG OR YOU CAN EMAIL ALL OF US AT INFO@LBMAKERSOCIETY.ORG

THANKS AGAIN!