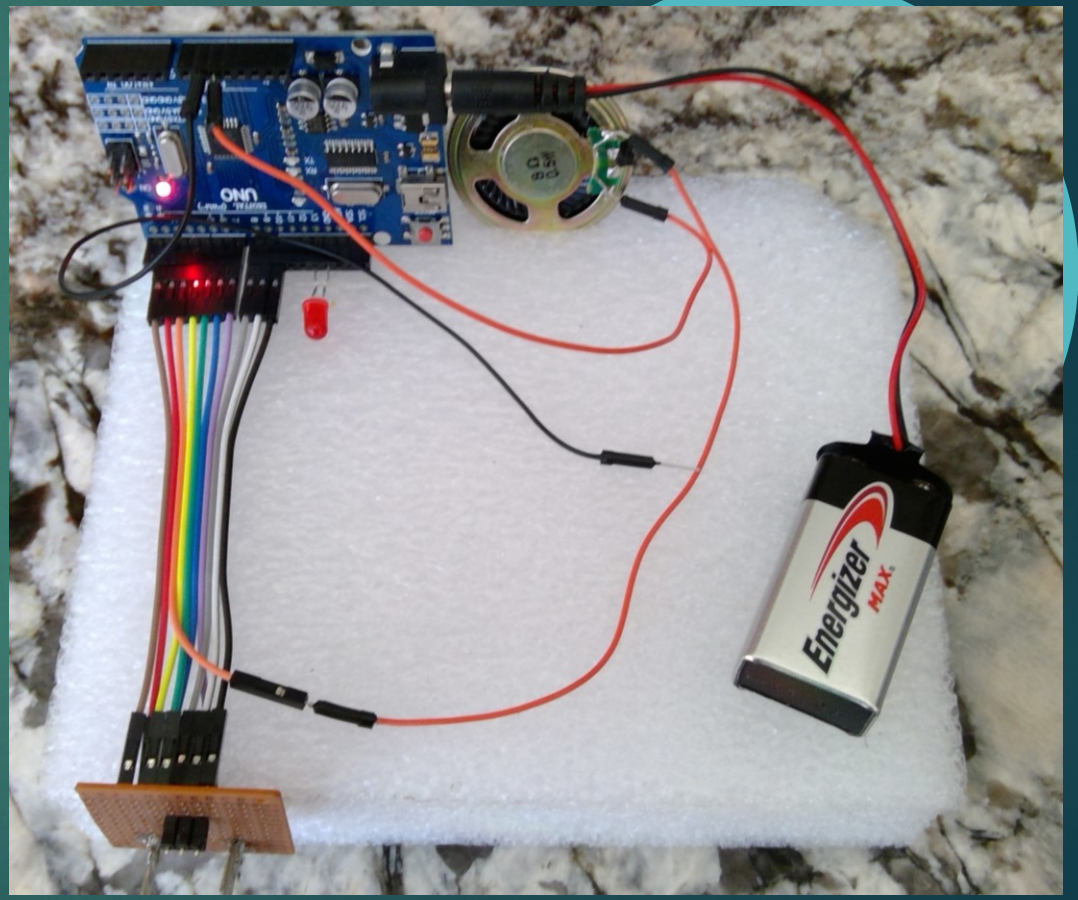
Learn CW on a Dime

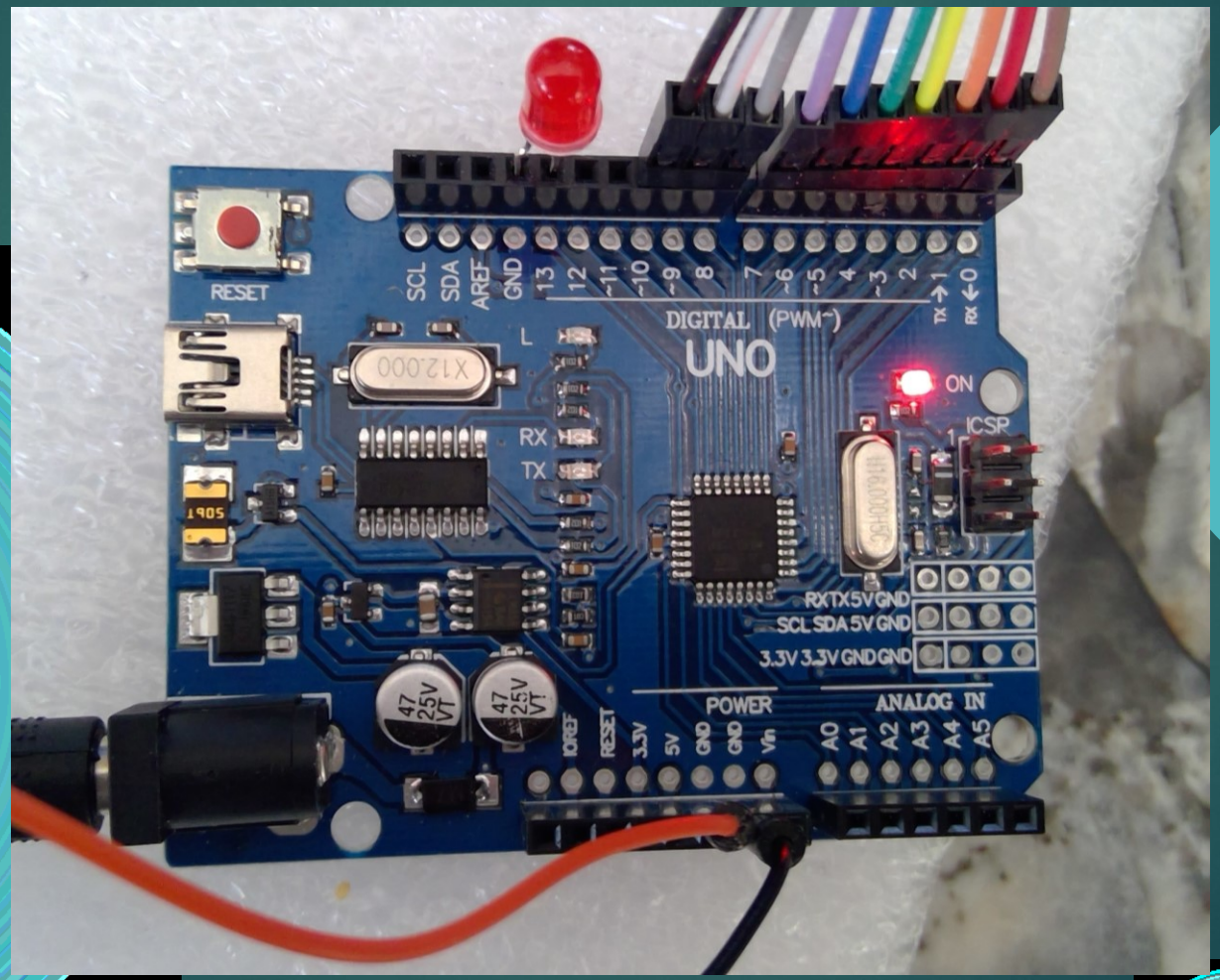
WELL MAYBE A COUPLE OF SAW BUCKS

Electronic CW IAMBIC Keyer w/ Arduino Board & 9 parts

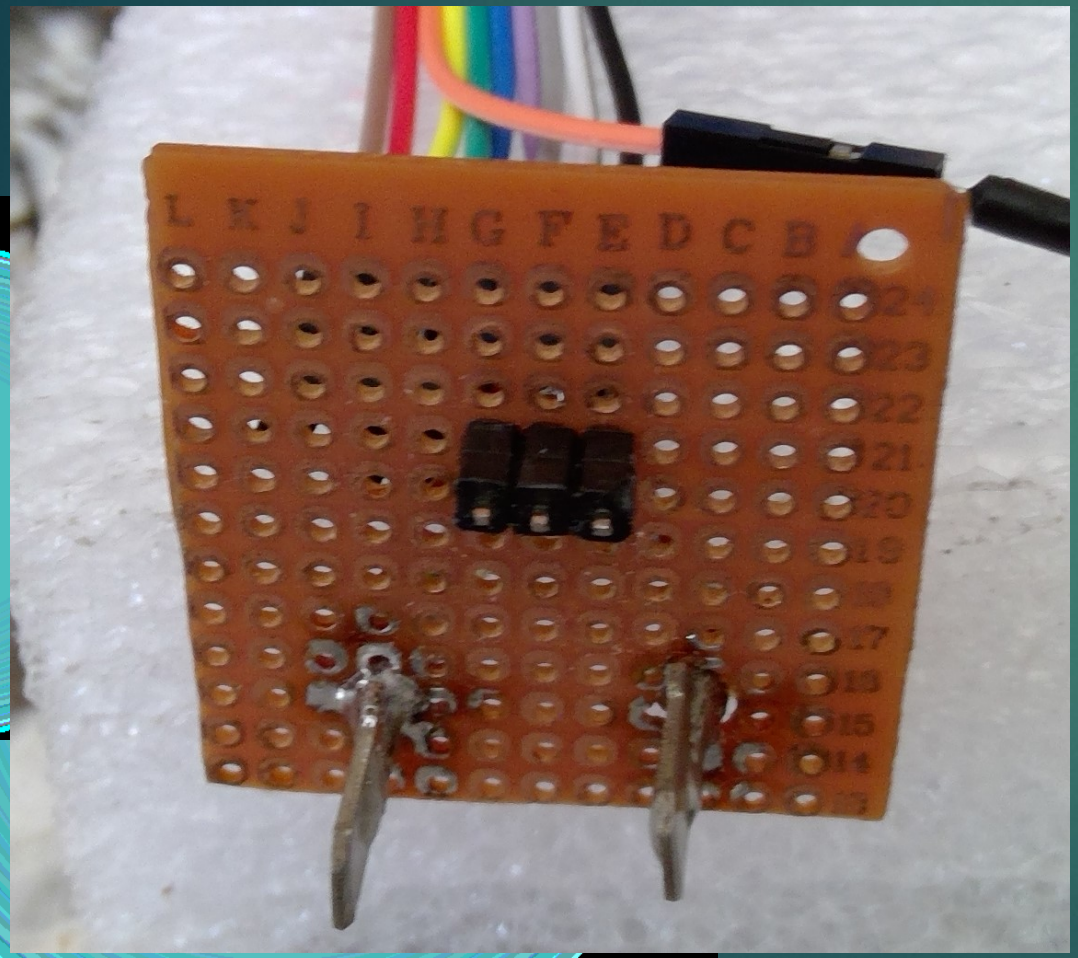
- Parts List
  - 1 – Arduino board (any variety) $8
  - 1 - small 8 ohm speaker w/ leads $2
  - 1 - 5-9 volt battery source
  - 1 - pin header
  - 3 - m2f header jumper $1
  - 1 - 1" x 1" piece of proto board
  - 2 - spade connector
  - 2 – 470 kΩ resistor
  - 1 – LED (optional)



UNO Board w/ Connections



Touch Key Pads



Arduino Code

iambic_keyer_arduino.ino

```
/* Iambic keyer for arduino by Dimitris Sapountzakis (01/12/2011) */
 #define DIT_PIN  8
#define DAH_PIN  10
#define EXC_PIN  9
#define LED      13

#define BAUD_DURATION         60          //mSec   60*(
#define INTERBAUD_DURATION    BAUD_DURATION*1
#define INTERLETTER_DURATION  BAUD_DURATION*2    //extra time after a baud
#define DIT_DURATION          BAUD_DURATION
#define DAH_DURATION          BAUD_DURATION*3
#define TOUCH_THRESHOLD       10       //how long to wait in uSec, before sampling the touch pin.
```

Standards for Word Length

- The typical word thus determines the dot length. We will assume that a word is 5 characters long. There are two common typical words: "PARIS" and "CODEX". PARIS mimics a word rate that is typical of natural language words and reflects the benefits of Morse code's shorter code durations for common characters such as "e" and "t". CODEX offers a word rate that is typical of 5-letter code groups (sequences of random letters). Using the word PARIS as a standard, the number of dot units is 50 and the dot length at 20 words per minute is 60 milliseconds. Using the word CODEX with 60 dot units, the dot length at 20 words per minute is 50 milliseconds. (~20% difference) (60s / (#dot units *baud length) = wpm rate)

Setting Up for Desired Word Rate

- Dit length = 1 baud
- Dah lenth = 3 baud
- Inter dot/dash gap = 1 baud
- Inter letter gap = 3 baud
- Interword gap (medium)= 7 baud

. _ . .-.-. . _ . _ .⬐⬎. . . _ . . ⬐⬎. _ _ _ _ . . _ _ _

- 1 baud = 60 milliseconds yields a rate of 20 wpm.
- At 80 milliseconds the rate is 15 wpm