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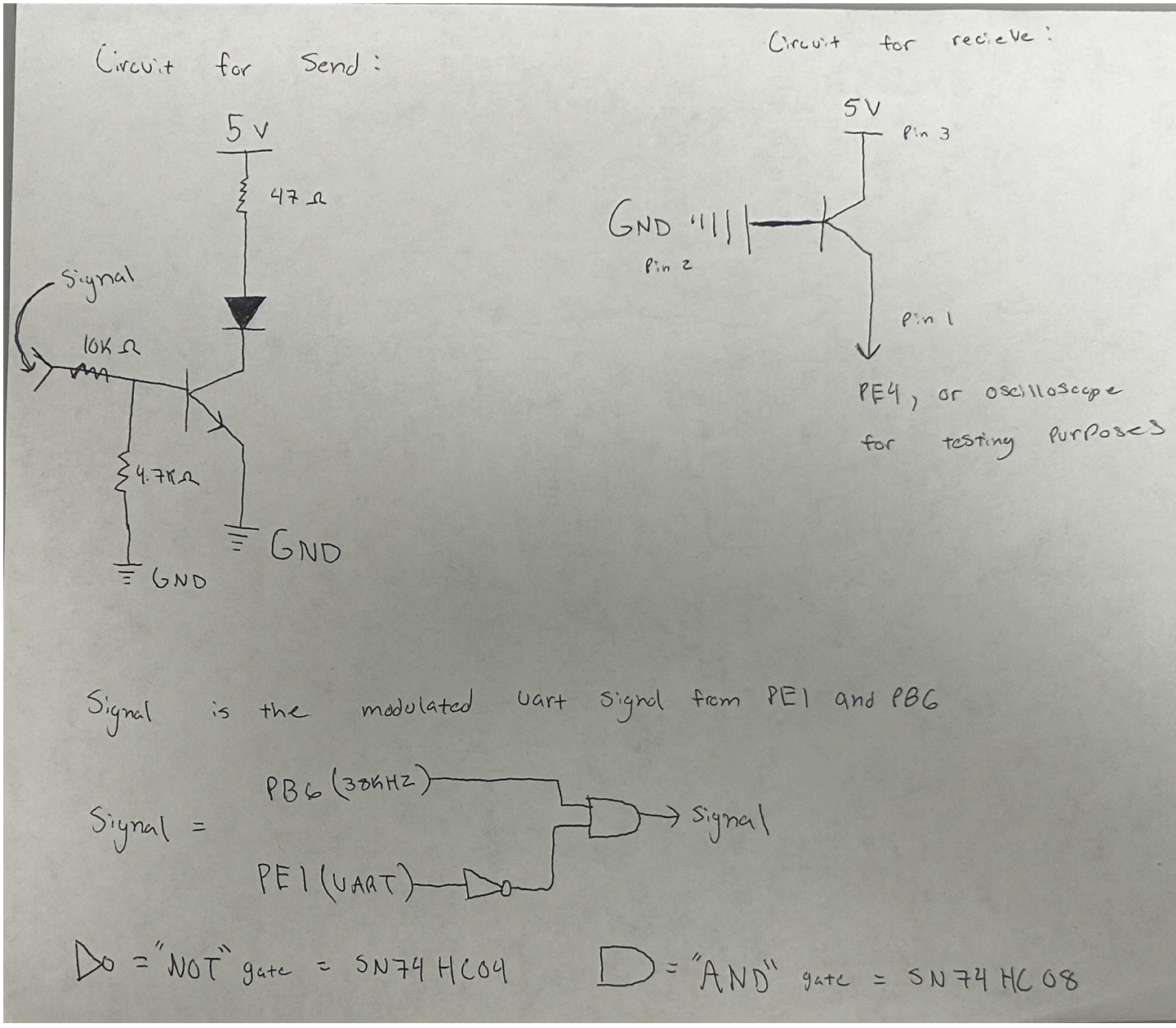
Circuit Design and Mechanical Assembly

Schematic for the send and receive:



Send:

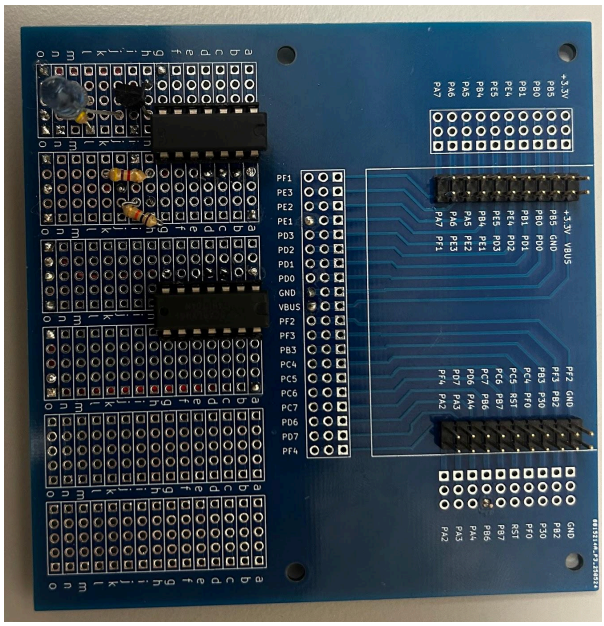
The circuit for send was inspired from circuit 2a of Lab 3. Instead of the “blue” input, we now have “signal”. “Signal” is the modulated output from the and gate, which combines PE1 (UART) and PB6 (38 KHz).

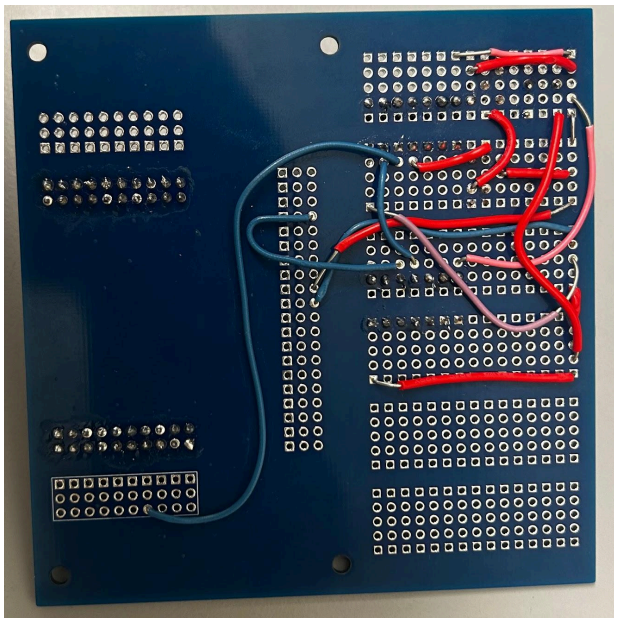
Receive:

The circuit for receiving was fairly easy to come up with. Since the decoding will all be done via software, there is not much implementation to be done physically.

Designed Circuit:

Send:

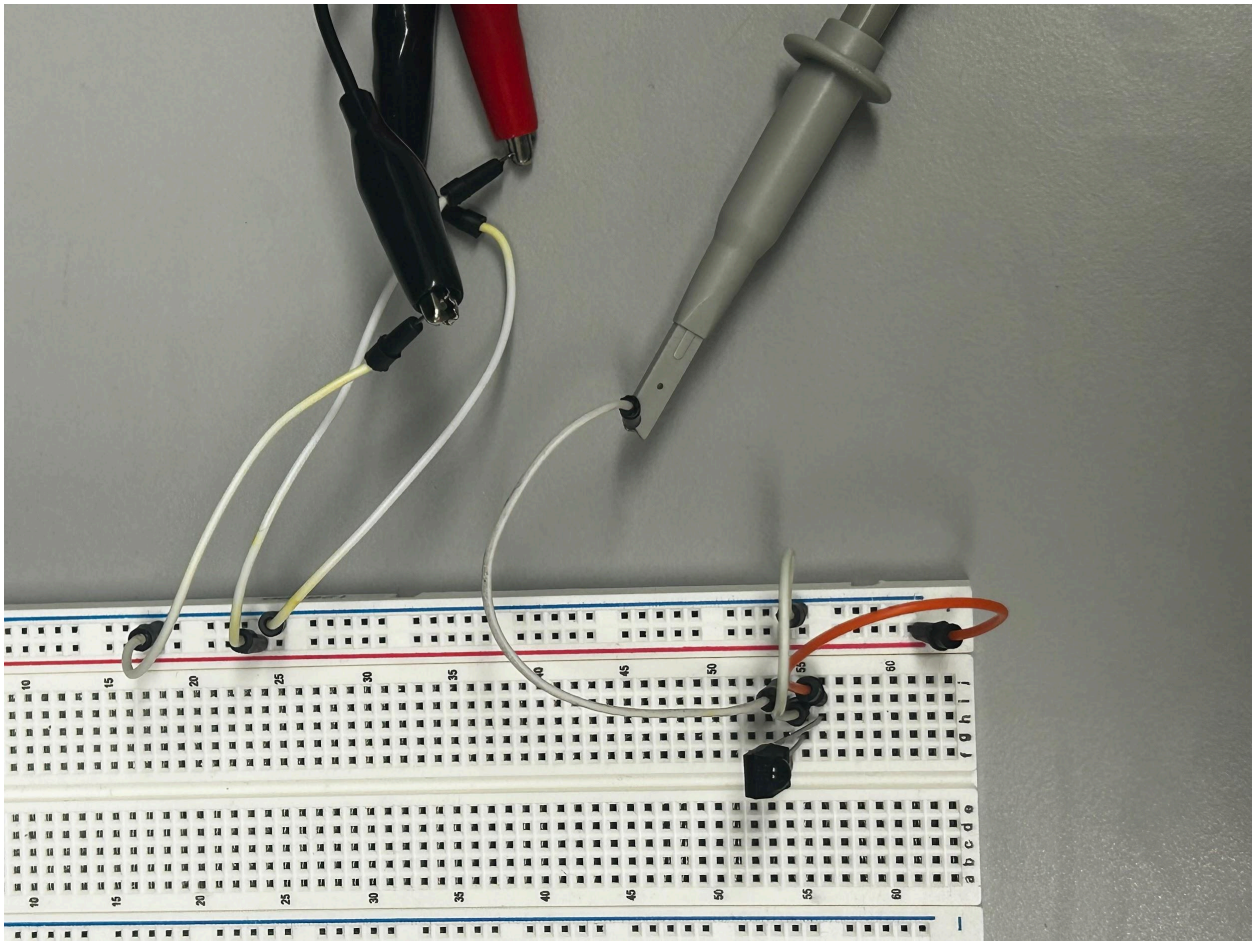




This circuit was sautered 11/19/2025. The circuit was tested using an oscilloscope, and had a 100% accuracy when it was about a foot and a half apart. The further apart I pushed it from the receiver, the worse the accuracy. I have attached a couple of pictures to show that the circuit works:

Results:

Receive:



This image shows the circuit used to capture the data from the IR LED on the oscilloscope. I have held off on soldering the TSOP134 since I am unsure of the pin it will be feeding into.