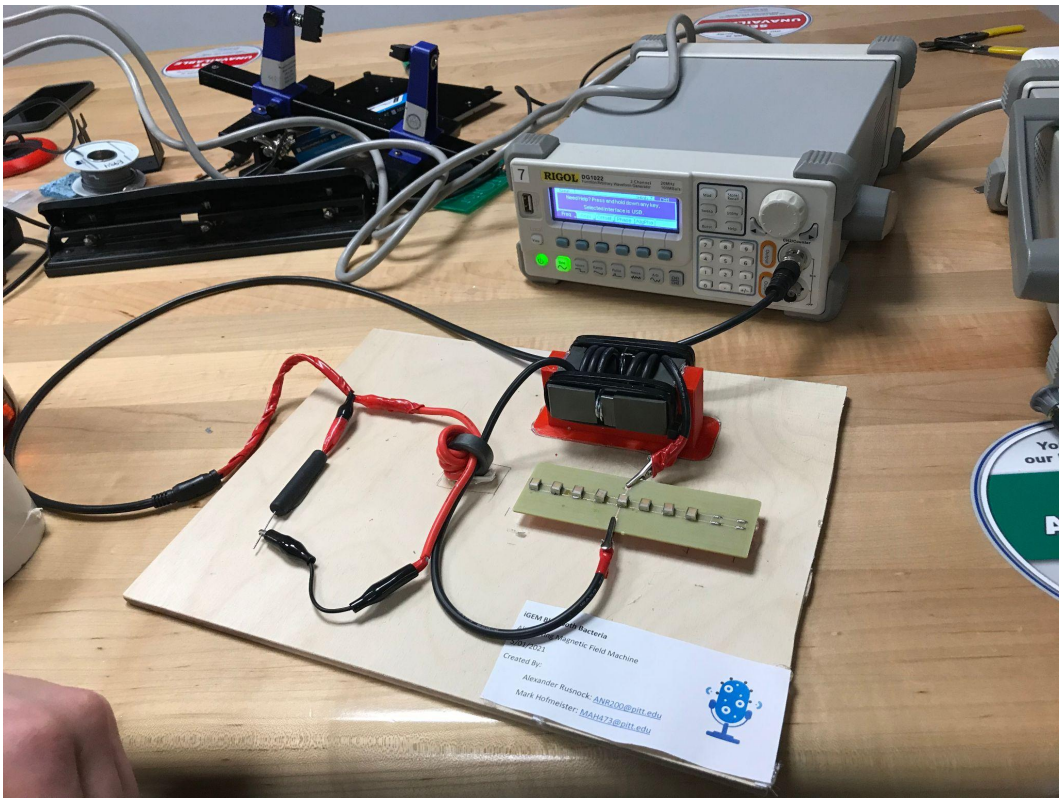
To use this device, a waveform generator and amplifier will be needed.

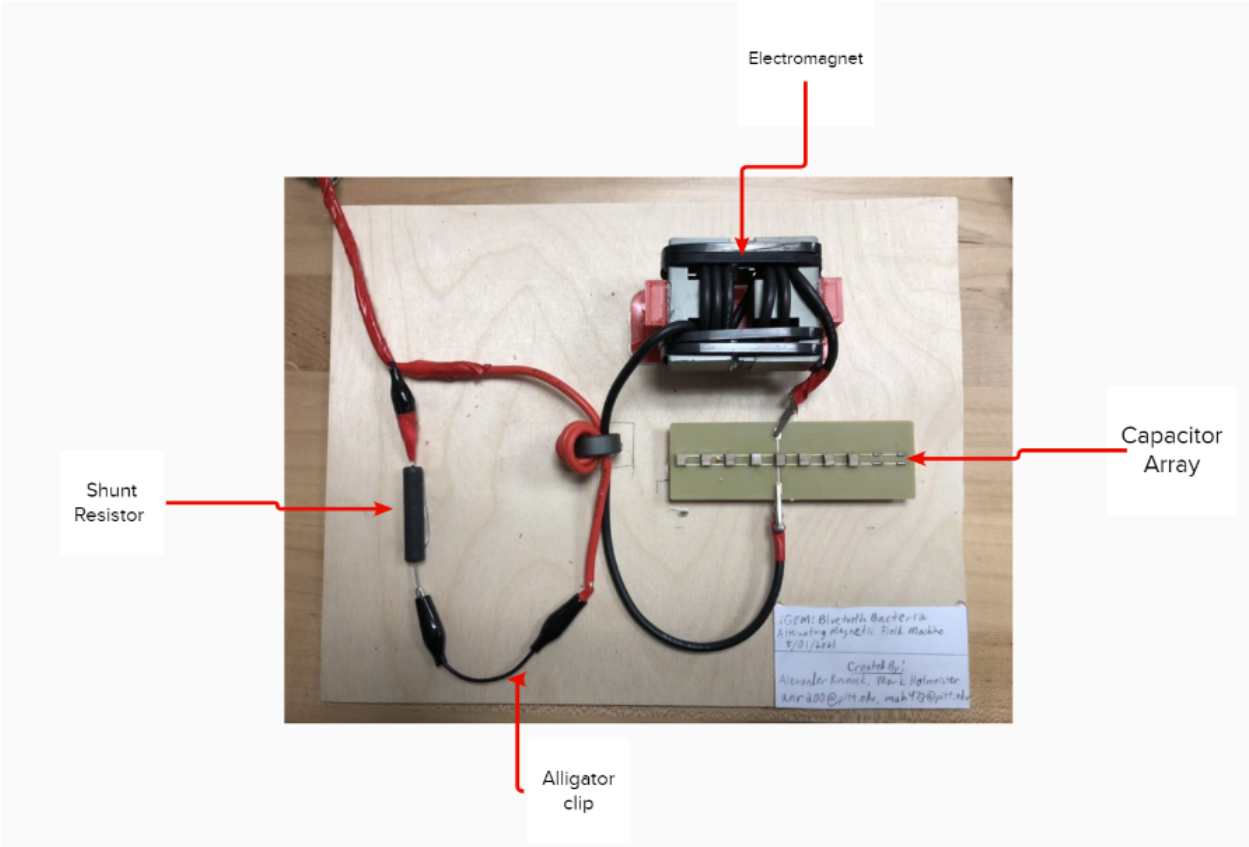


In the picture above, the coaxial cable (red) is connected directly to a waveform generator. In practice, this coaxial cable will have to be attached to an amplifier capable of the necessary output. This amplifier will then be attached to the waveform generator.

Configure the waveform generator to 20 Vpp and 100-500kHz, depending on laboratory needs.

The exact settings of the amplifier are unknown, as we did not have the device to experiment with.

Once the amplifier and generator are connected, the circuit can be used:



The Spacing in between the two E-cores is where the specimen will be placed.

If it is necessary to measure the current through the electromagnet, this can be done so by removing the black alligator clips connecting the red wire and shunt resistor. The probes of a digital multimeter can then be connected between these wires.

To measure AC current through the resistor, set the multimeter to the **AC** current setting:

And connect the red multimeter probe jack to the red port that is noted with an I, A, or other current symbol:

The current through the electromagnet can be calculated by multiplying the value displayed on the multimeter by 5.

If the electromagnetic core or wires begin to overheat, a small fan can be placed directed towards the magnet, blowing in the direction of the “electromagnet” label’s red arrow.
The 3D printed stands will allow airflow to properly cool the device.

Questions? Concerns?

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