**ENGINEERING JOURNAL LOG 4**

# 23/11/2019

# Tasks

* Finish building oscillator and test it with transmitting coil
* Design receiving coil and hardware for signal processing on the receiving end.
* Process digital with Arduino for demonstration on December 10.

# Reflection

I used circuit from second year notes of analog electronics (circuit in previous log). After I had finished power supply rails, I was able to fully test my oscillator. I had to change some values of resistor and capacitors to achieve 5khz frequency. I designed circuit in the way that frequency can be manually adjusted from 1khz to 10khz. After steeping test as shown in pictures below, I noticed that there is unwanted noise. I will remove noise in band pass filter.

# Issues:

*Hardware:*

1. Unwanted noise one’s coil is connected to circuit I added capacitor in parallel with coil some amount of noise was removed due resonance between coil and capacitor
2. Another issue due noisy coil I need to receive traces of magnetic field from object detected. Because I have transmitting coil which pulsating with amount of power which covers tiny signal from objects. I will try to receive signal with receiving coil and use signal from transmitting coil to cancel main signal and amplified what’s left. This should detect tiny signal coming from the ground.