14/10/2019

**ENGINEERING JOURNAL Log 2**

# Tasks

* Build a Power supply for metal detector op-amp system
* Read more about coils and inductors.
* Test Power supply module for current supply stability.

# Reflection

* Building the power supply module worked well circuit is not complex. When testing on current consumption then issues will start on stability in voltage, but I hope some decouple capacitors will slow the problems.
* By browsing the internet I found a document published by enginers from “Minelab”. In the paper, they explain metal detector basics work principles, some information on advanced detection of precious metals. Ther is a discriminator function which helps to detect and recognize objects.
* The coil selection is going further too. So far I was able to recognize most coils used in today's metal detection technics. By choosing concentric search coil, the coils pinpoint accuracy and accelerometer data with microcontroller it will make shape very good. My concern is about the interference of this coil will produce, or damage some equipment.

# Solutions

* There are protections from EMC such as shielding the coil at a certain surface. Or cover it with a faraday cage