**ENGINEERING JOURNAL Log 1**

**11/10/2019**

**Tasks**

* Create a block diagram of the project
* Produce Ideas for the project. Submit proposal
* Sketch circuits for a modular system
* Start implement idea
* Research coil types already are used in industry/consumer
* Research different schematic available

**Reflection**

The first month was busy with the research of how a metal detector works, from where I will start, what do I need to complete and deliver the project?

The device should produce a magnetic field that induces ferrite/non-ferrite objects in the soil. Objects will produce its own magnetic field where the device will pick up traces of it and notifies the user on detection.

During the research, in the beginning, I was getting the impression that the project will be very complex to produce. But by breaking down to smaller phases of the project, I was understanding more clearly how I will complete it.

The metal detector uses copper coils to produce magnetic fields, the same copper coil can pick up other fields created by objects which can conduct electric charge. Most popular types of search coils are concentric, elliptical and double-d. I will employ a concentric coil. This coil pinpoints object better than the other two types. This is perfect for my project since I want to map object shapes. The coil will be driven by the coil driver, it will create sinusoidal waves and pass them through the coil to create a magnetic field. To pick up the signal from an object I will use the same shape coil right beside transmit coil. The coil driver will feed the signal to MCU. MCU will provide control for coil driver and signal processing.

**Issues**

Issues in the development of the plan in project development. It was confusing at the beginning of where to start. Lack of understanding of how project development starts.

Choosing components for hardware, MCU, modules.

**Solutions**

Project development becomes clearer when I brake down it into smaller phases. Now I can work on parts of projects and its less confusing.