**Step 2: Decide on an Activity to observe & Make a Plan**

Activity Name: Stockpile Validation and Valuation

* -the engineers do stockpile survey to do the stockpile validation and valuation for a mining firm to get certification to export minerals.
* They use analog devices to gather data such as Total station, RTK, Laser Scanner, prism,

- Advantages:

* Very accurate and reliable
* Durable

Disadvantages:

* Expensive
* Bulky and Heavy
* Requires more manpower
* Slow data collection

User issues:

* Difficult in collecting data since the equipment is heavy and bulky.
* The equipment is expensive for data acquisition just for stockpile validation.
* Data acquisition is time assuming since accuracy is required and accuracy is based on the number of data sample.
* Inaccurate volume due to limited sampling caused by time constraint
* Software requires intensive training and experience before they can create a 3d model/digital elevation model and its volume.

Environment

* The mining site is huge. Needs a lot of walking to get data
* The temperature is so hot
* The wind and mineral particles are also an obstacle since it soils lenses or may get into the eye

List of People to be interviewed.

* Stockpile surveyors
* Mining company engineers
* Stockpile pre and post processing personnel
* Stockpile Inventory personnel

Users:

* Surveyors
* Processing personnel
* Students/trainees
* Engineers

**Step 3: Observe & Interview 3 People**

* There is an existing solution to the problem which is using drone that uses technology such as Lidar and photogrammetry however this equipment is too expensive for the said task.

**Step 4: Identify User Needs**

The user needs the following:

* A small and light equipment that is easy to transport and easy to move from one place to another
* An equipment that will provide more data that will generate more accurate volume
* An equipment that is time efficient in collecting data
* An equipment that is affordable
* An application that automatically generates output without the need of data manipulation and software expertise

**Step 5: Point of View**

* With remote sensing technology and an application, stockpile validation would become easier, more efficient, and more accurate.