# Revision 2

## Technical Description

* Power - To provide power, we used two serialized 3.7V Li-ion 18650 3000mAh batteries which will output 7.4V at the nominal to feed into two independent buck converter models. With our concluded laboratory testings, we measured the maximum current the device will draw at any given instance is to be capped at 100 mA. Therefore for our power calculations, we took the effective battery capacity of 1900mAh according to the datasheet and worst case average power consumption of the reader device to be 85mA. Thus receiving 21 hrs of lifetime per one charge cycle.
* Number of trees - In a single trip to the field, a group of workers typically cover 100 trees. This takes about 2 hours. Since our device can withstand up to 21 hrs of lifetime, with a single charge, Therefore the device can cover 1000 trees at nominal.
* Range - The reading range of the device is about 5cm. This range will vary or reduce due to tag orientation and Radio Frequency characteristics. EM4100 protocol used in the tag comes with 2-byte parity data which is ideal for detecting collisions and other reading errors. On top of that, the low reading range is essential in our case to make sure that the worker reaches out to each mango and to minimize the reading collisions.
* Weight - The handheld device is measured to be 250g with a battery inserted. Most of our design decisions were to make the product as lightweight, and compact as possible while still providing visibility for the worker.

## PCB Designs

Check Here: <https://drive.google.com/drive/folders/1In2_rQcMbQkSrZ-9IU8FHFsnA2D_JND2?usp=sharing>

## Revised Chart

Check here: <https://drive.google.com/drive/folders/1T7_AsL9uX6dUGuS-kHZltiOi9njmOlKt?usp=sharing>