Lakshya Report

To understand a problem and find its possible solutions

# 1.Problem Statement.

Some of the factors that affect crops are soil quality, moisture content, weather conditions. These factors vary a lot with small change in area. Hence the farmer might be using either manual testing of each spot of land, or he might test the soil once a few months. This might cause unforeseen degradation of crop or quality before the farmer realizes.

The harvesting period of some crops is hard to determine and also may come in stages in some cases. They might harvest them based on color, temperature of the harvest and some more factors which we only may know when we conduct a ground survey or research the specific crop for some tell-tale signs of harvest period.

Fertilizing through chemicals should be done most probably in sets of land where soil quality is deteriorating and hence, we need to identify and target only those patches of area.

The sensors cost a lot more than what they are produced for. If manufacturing of such sensors is set up in India to make manufacturing and delivery cheaper it might help the farmers in making more educated decisions.

# 2.Solution Statement.

Using sensors such as CO2, Soil moisture, Soil acidity, Humidity, Temperature, Pressure sensors in multiple spots on the land will give the farmer a great understanding about his land. These sensors may if used by many in the same area will need a low-cost communication service. When bundled with more users it might bring in more data which will offer more insight to the farmer. We can try to make sensors cheaper and try to implement LoRa communication system into it. And we can try to make nodes which will take these details and send some kind of message to the farmer instantaneously.

If the harvest primarily depends on color and temperature then we might be able to make a cheap water bottle rocket drone which will click pictures of heatmap and colormap of the farm and will land safely by a parachute. These details will help the farmer in harvesting more effectively.