**IOT in Crop Production**

Introduction/Problem Statement: India is a developing nation and an agriculture major country. Our honourable PM Mr. Narendra Modi talks about Smart Cities. We can put smartness in every object possible. We have heard a number of incidents where farmers are not able to maximize their crop production. In this project we are trying to take into consideration wide number of factors which involves in crop production. Internet of Things in Farming can really boost farmers status and our countries economy. We will try to solve the basic problem of utilising complete area of the farming land taking consideration the weather, resources and the land to cultivate by Mixed Integer Linear Programming (MILP).

Abstract: Information of Things has become an important area of consideration. A very interesting concept of connecting everything around each one of us and access from round the globe. Our vision is to provide maximum output a farmer can get from his field so as to live a good life. I don't think that our current approach is friendly enough to be used by a farmer but surely will be one day. Maximizing the output from a field is not just affected by one or two possible factors. It depends on a number of factors which we will be treating as variables in our program. This project can be subdivided into 3 phases i.e., Algorithm to solve the problem, hardware to gather the physical information of the field and the surroundings and third is integrating the hardware with a user accessible interface on the cloud. GR Peach will be the board we are focussing on to be used for the project with integration of a number of sensors physically present like humidity, temperature, soil moisture, pH sensor etc and some of them would be virtual sensors to be used. IBM Bluemix will be used for hosting the application on the cloud and node-RED for prototyping and visualising the working of complete application. Mixed Integer Linear Programming or MILP is the algorithm which is to be used to generate the output. Inputs in the algorithm will be variables like Soil Moisture, Soil Acidity, Atmospheric Temperature, Atmospheric Moisture, Field Size, Number of Crops, Type of Soil, pH of Soil, Rainfall pattern in the Area and many more. We would be considering all the factors in the algorithm. The program will give the outputs like how crops should be planted and which plants to be planted. This will really bring a new dimension to the agriculture sector of India.

Conclusion: Project pushes forward the possibilities in agriculture. Moral boost to the farmers. Countries agriculture sector can once again somehow hold its back. Maximum production means maximum profit to farmers and so as to the government. Possibility of 5% - 15% rise in production.