**NATIONAL SOCIAL SUMMIT’23**

**IIT ROORKEE**

**TEAM NAME- FUNKY CREATORS EVENT NAME- SOCIOTHON**

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**PROBLEM STATEMENT:**

The productivity of Crops depends on how the fields are plowed, the soil quality, climatic conditions, and availability of arable land, and is affected in particular by yields, macroeconomic uncertainty, and consumption patterns.

One of the major problems faced by the producers is the Irrigation problem**,**

Soil can be over-irrigated due to poor [distribution, uniformity](https://en.wikipedia.org/wiki/Distribution_uniformity), or [management](https://en.wikipedia.org/wiki/Irrigation_scheduling) of wastewater causing deep drainage from rising water tables that can lead to problems of irrigation [salinity](https://en.wikipedia.org/wiki/Soil_salinity). However, if the soil is under-irrigated, it gives poor [soil salinity control](https://en.wikipedia.org/wiki/Soil_salinity_control) which leads to increased [soil salinity](https://en.wikipedia.org/wiki/Soil_salinity) with the consequent buildup of toxic [salts](https://en.wikipedia.org/wiki/Salt_(chemistry)) on the soil surface in areas with high [evaporation](https://en.wikipedia.org/wiki/Evaporation).

**SOLUTION:**

**“IoT for controlling surface irrigation using soil moisture analysis”**

Irrigation not only contributes to increased crop production but may also reduce variability in production through improved control of the crop environment. However, the dependence of modern seed-fertilizer technology on irrigation and fertilizer, which are subject to unreliable supply, may contribute to increased variability in production. Therefore this **Solar powered automatic field monitoring system detects the soil quality and amount of moisture present.** On the basis of that, the water and required products can be sprinkled.

**Key features:**

* The instrument captures all the moisture.
* Data and soil minerals to the farmer shed.
* This water pump can be operated automatically and manually by an app that is used by farmers.
* In a field, 4,5 analyzers can be applied by which the average data of the field can be calculated.
* Correct amounts of fertilizers and other chemical products can be detected.
* The model is affixed with a solar panel, reducing electricity consumption.

**Technology Stack Used:**

* Node MCU (esp8266)
* G.S.M module
* Moisture sensor
* N.P.K sensor
* Battery
* Solar charging module

**Perks:**

* Portable device(easy to install)
* Easy to plow.
* Can be easily understood by the farmers.
* Easy to operate.

**Limitations:**

* Internet connection