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VIDEO LINK: PROJECT

Title: AGRIROVER

- **The problem that the agriculture rover is solving is related to optimizing crop growth and increasing agricultural productivity.**
- **Problems:**

Temperature Regulation: Extreme temperatures can negatively impact plant growth, affecting the germination process and overall crop development. Farmers may face challenges in maintaining optimal temperature conditions for their crops.

Soil Moisture Management: Inconsistent or improper soil moisture levels can lead to poor crop yields and quality. Farmers may struggle with overwatering or underwatering, resulting in wasted resources and reduced productivity.

Nutrient Monitoring: Inadequate nutrient levels in the soil can lead to nutrient deficiencies in plants, affecting their health and yield.Farmers may struggle to determine the right amount and type of fertilizers needed for their crops.

Data-Driven Decision Making: Lack of actionable data for decision-making can result in suboptimal farming practices. Farmers may rely on traditional methods and experience rather than data-driven insights.

Statistical data:

Report on soil health ,productivity and production revealed increase in production of crops on using recommended dosage of fertilizers: Link

Report on ASSESSMENT OF PRE AND POST HARVEST LOSSES OF IMPORTANT CROPS IN INDIA told poor yield due to imbalance water supply link

Existing Solutions:

- **Agricultural drones**:It cannot monitor conditions under soil.
- **Smart Irrigation Systems:** Just monitors waters levels .
- **Soil Sensors:** Cannot revolve around field to monitor status of field.
- **Smart greenhouses** : Difficult to recreate on larger scale.

My solution :

- Creation of remotely controlled Rover equipped with soil parameter sensors such as soil moisture, NPK values, soil temperature, nutrients level etc.
- It is also equipped with camera and gas sensors to provide insights into the ripeness of the crop and detect possible crop diseases.
- The rover can be programmed to patrol various regions of the fields and provide soil and plant health analysis data for each region.
- This will keep the farmer informed of any mishappening to their crops.

Difference from existing solution and feasibility:

- This rover is highly scalable and can be used to monitor fields of any scale.
- It also provides all the insights of the crops and soil in platform and the user need not use various dashboards for different parameters.
- Rover's sensors and algorithms are adaptable to a variety of crops and farming practices.
- Cost of manufacturing, deployment, and maintenance against potential benefits such as increased yield and resource efficiency is low.