Recommendation System for Farmers using Deep Learning and IoT

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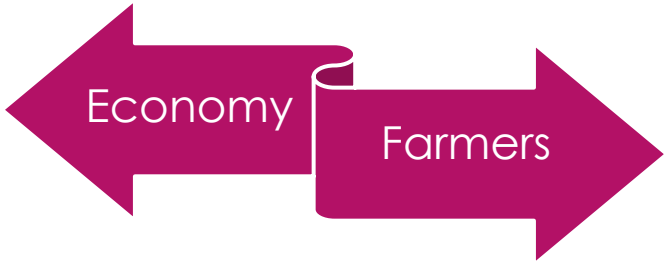
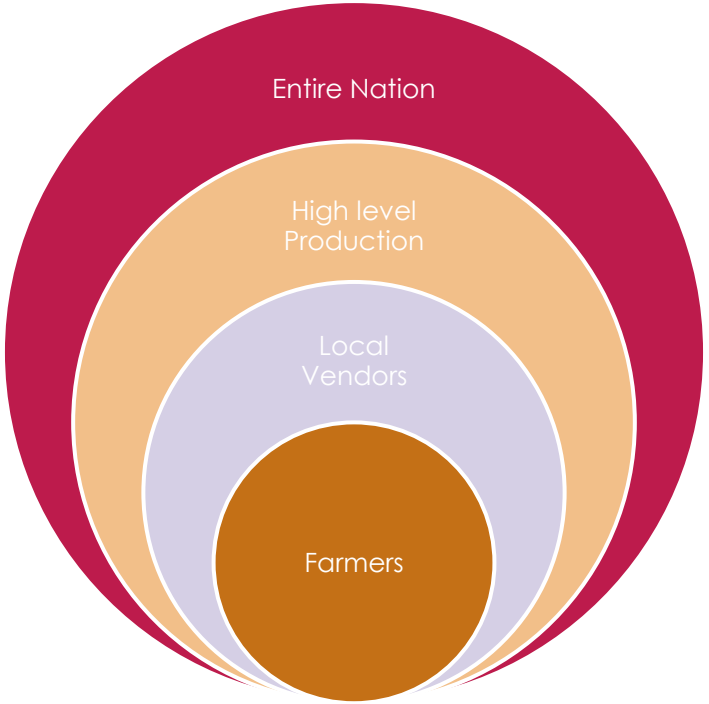
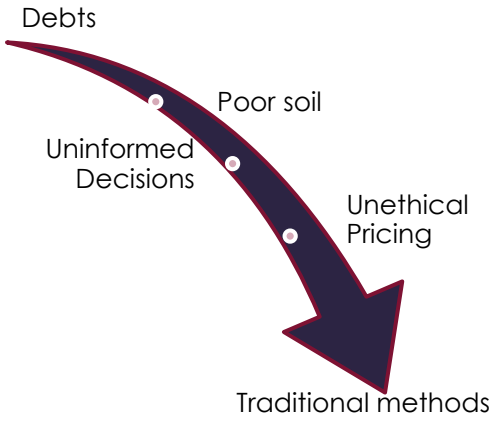
INTRODUCTION

- Problems farmers are facing currently :
  1. Poor overview of the entire farming procedure.
  2. Old traditional methods learnt from ancestors.
  3. Half-knowledge on usage of fertilizers.
  4. Damaging land due to over usage of soil.
  5. Weather predictions inaccurate.
  6. Hardships in deciding prices.

Motivation







Rise of AI can solve this.

Existing systems

Present

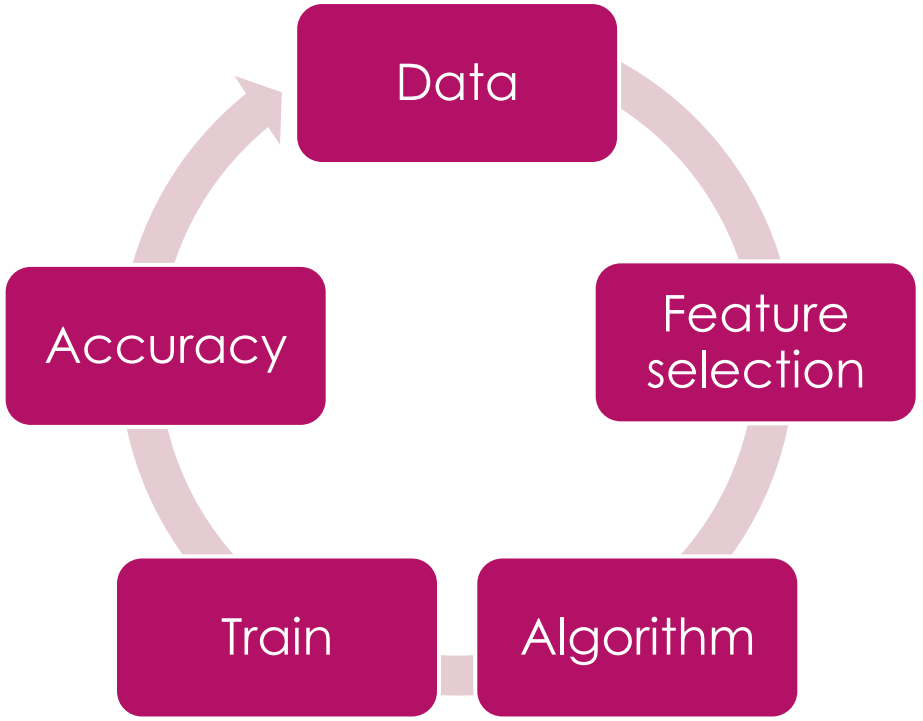
- ✓ Recommends crop.
- ✓ Recommends fertilizer.
- ✓ Recommends price.

Not Present

- × Individual Projects
- × Doesn’t tell when to harvest.
- × Poor feature selection for price prediction.
- × Short range IoT.
- × Random classification algorithms.

Proposed System

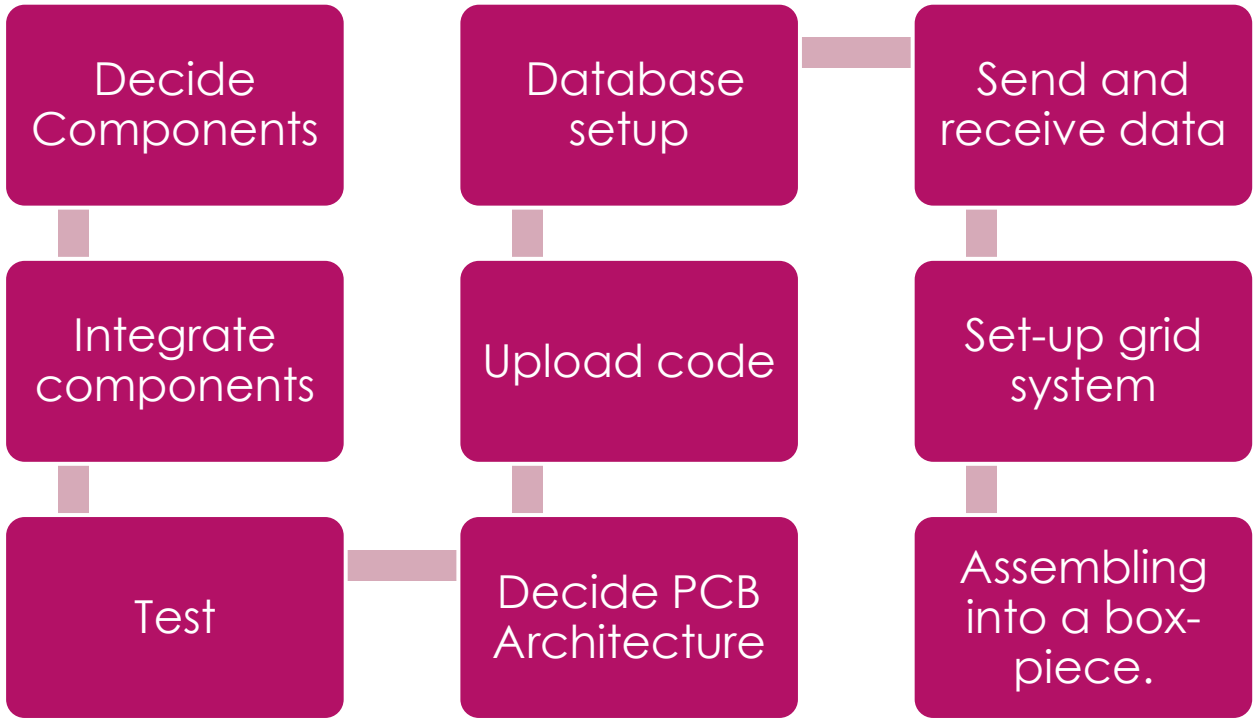
- Highly iterative process.
- Requires lot of experimenting.
- State-of-the-art IoT technology.
- Modern satellite imaging methods.
- Centralized Db and peer support.



Objectives

- Apply Machine Learning algorithms using the data collected from the sensors to create a recommendation about the types of fertilizers best suited for the particular soil.
- Apply Neural Networks to satellite imagery, geographic location data and climatic data to create a recommendation about the type of crops to be cultivated which is best suited for the conditions.
- Predict the price of the crops in the market using methods like web scrapping to retrieve the current trends and stock market validations.
- Create a community of farmers which will help them interact with each other and share their queries.

Initial Pathway :: IoT



Initial Pathway :: ML

1.
   - Get data from IoT or centralized database.
   - Pre-processing and cleaning.
2.
   - Feed data into models.
   - Send output to database.
3.
   - API calls and queries integrating with Web for user interaction.

Literature Survey

- Unleashing the Potential of Machine Learning and IoT in Cyber Physical Farming – Mallesham Dasari, Sergey Madaminov, Sagnik Das, Santiago Vargas Computer Science Department, Stony Brook University, NY, USA – (Institute of Electrical and Electronics Engineers) IEEE 2017 .
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Thank You