



Artificial Intelligence in Farming **CropTech**

Introduction

FROM INDUSTRY 1.0 TO INDUSTRY 4.0

1.0

1784

► Based on mechanical production equipment driven by water and steam power.



2.0

1870

► Based on mass production enabled by the division of labor and the use of electrical energy.



3.0

1969

► Based on the use of electronics and IT to further automate production.



4.0

TOMORROW

► Based on the use of cyber-physical systems.



This is the era of 4 th revolution.

A large green combine harvester is shown harvesting a field of golden-yellow grain. The harvester's auger is extended, pouring harvested grain into the back of a green trailer. The scene is set in a vast agricultural field under a clear sky.

Introduction

- The agriculture industry must catch up to other sectors in adopting and using the many technologies.
- Costs for food systems have increased.
- Revenues have been limited by the widening gap between commercial farming and small farm owners.



Abstraction

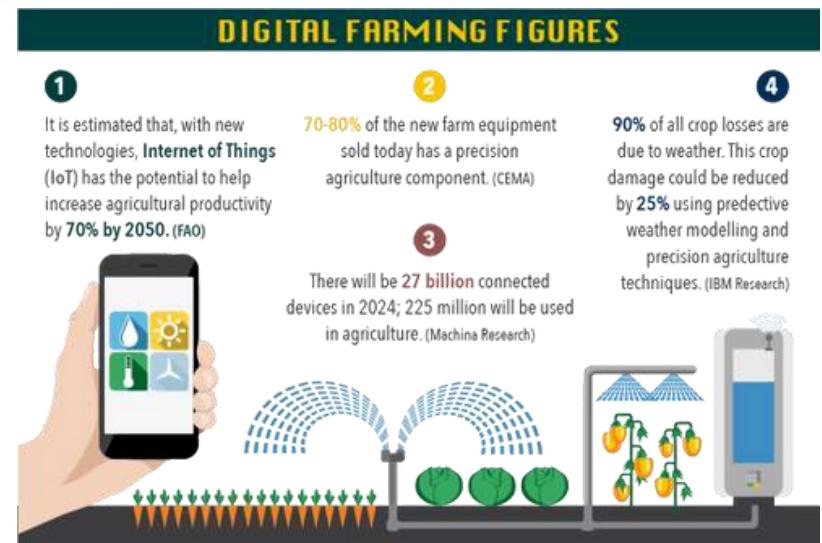
The project tackled the challenges of feeding a growing population sustainably using technologies like Pygame, NumPy, and CNN. Deep reinforcement learning and the YOLOv3 algorithm were implemented, while leveraging Google Maps API, FastAPI, and React.js. Continuous learning, careful planning, and time constraints were key aspects of the development process.



Why is all this talk about AI necessary?

Problem Statement

- Till 2050, the Global agriculture sector will be under more strain than ever, with 2 billion more mouths to feed within the next 33 years!
- It seems it is no longer an option to plant more crop fields or breed more cattle.



Solution



- Greater efficiency within current farming methods

Let's talk about how AI can solve it.

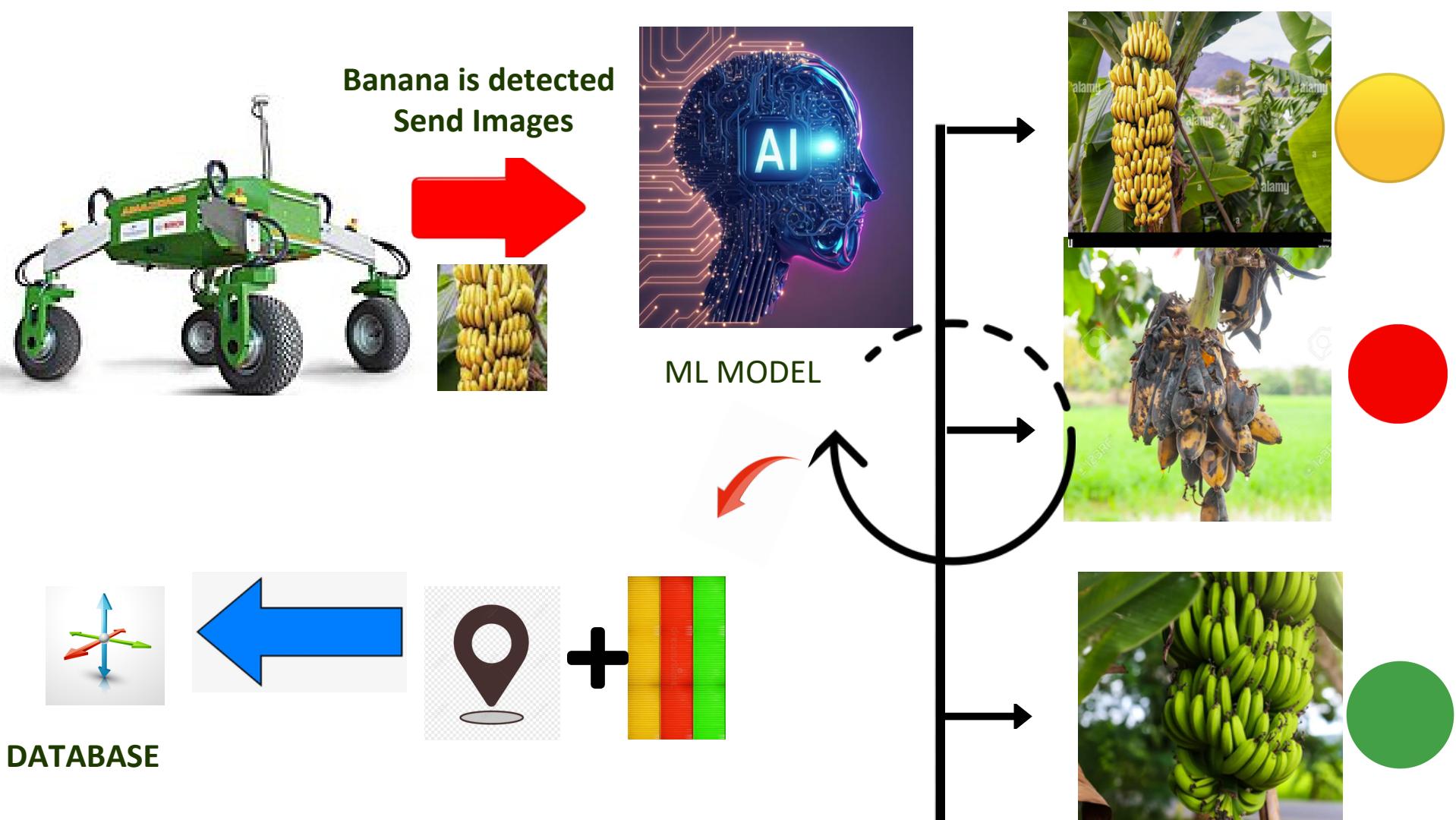


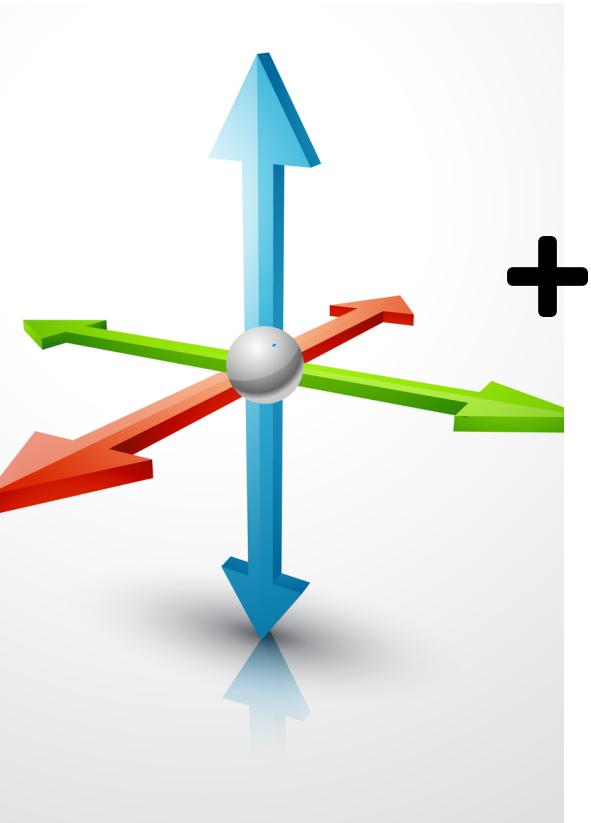
The ways AI is shaping the farms of the future

This will travel through the farm
with a 360° camera.



AI Based Driverless Land Rover





COLORED COORDINATES



My Banana Farm

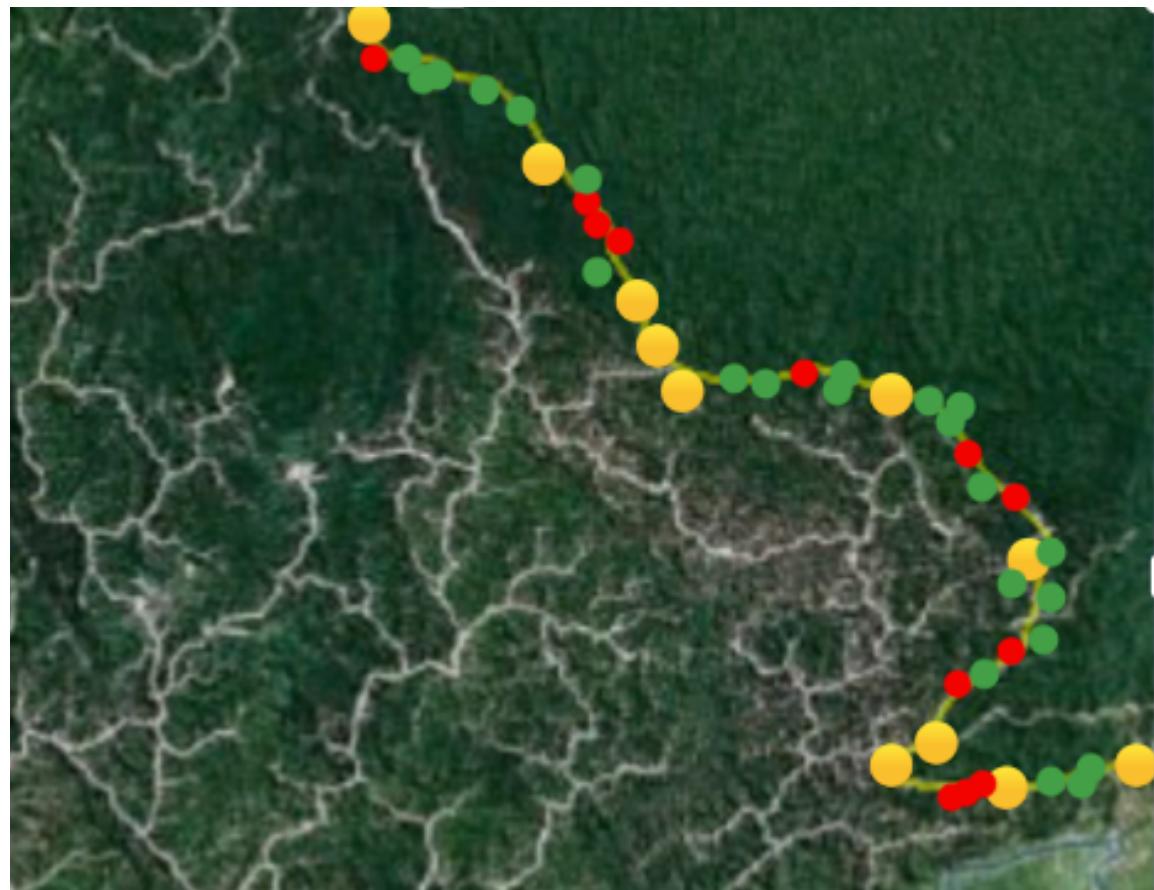
Digital Map telling the location for banana in the farm

My Banana Farm- final map- This is the a map that tells the location for

Rippen banana

Rotten Banana

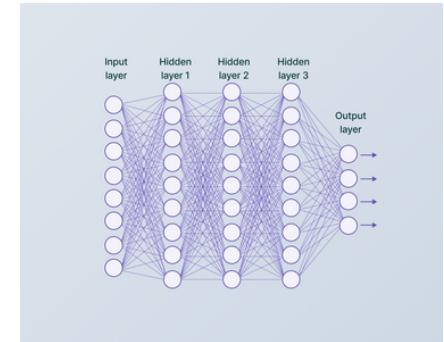
Non-ripen banana



Tech Stack used



FastAPI





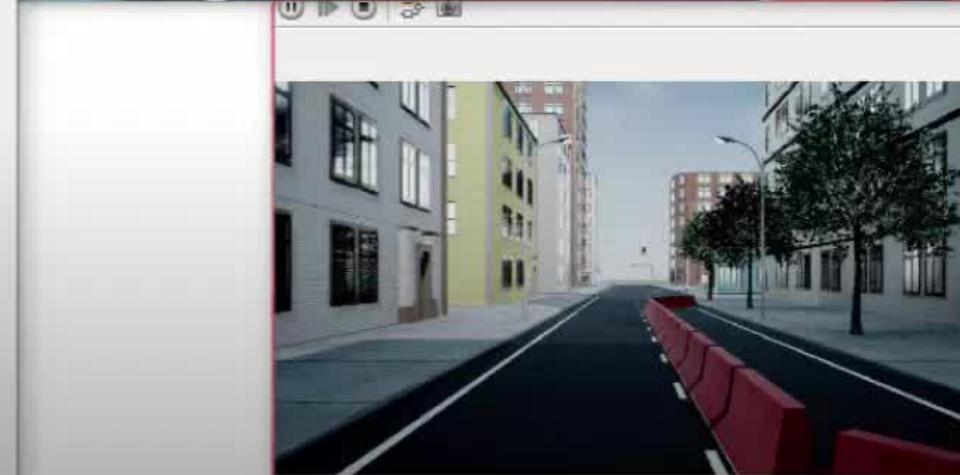
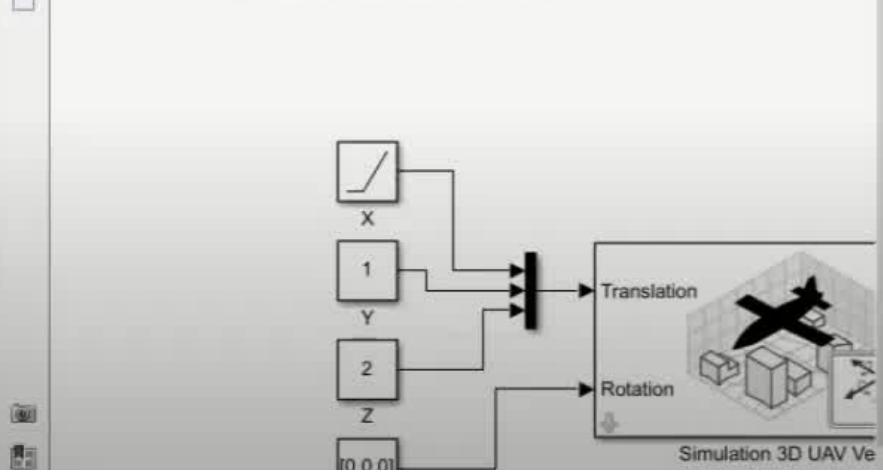
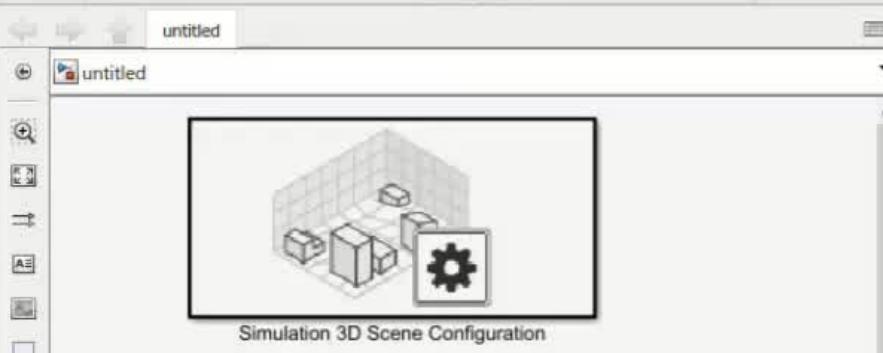
FUTURE SCOPE

Drones

- *. Drones and Computer Vision for Crop Analysis*

*Matlab-based 3D Simulation
for Testing UAV Application
and 3d drone simulation are
useful tool in this field.*







Conclusion

- AI can be appropriate and efficacious in agriculture sector as it optimizes the resource use and efficiency.
- It solves the scarcity of resources and labour to a large extent. Adoption of AI is quite useful in agriculture.
- Artificial intelligence can be technological revolution and boom in agriculture to feed the increasing human population of world.
- Artificial intelligence will complement and challenge to make right decision by farmers.



THANK YOU