

The Amiga Field Robot and the Future of Smart Agriculture

Transforming farming through robotics and AI

 by Samantha Schmidt



What is the Amiga?



Autonomous field
robot

Self-operating machine
designed for agriculture



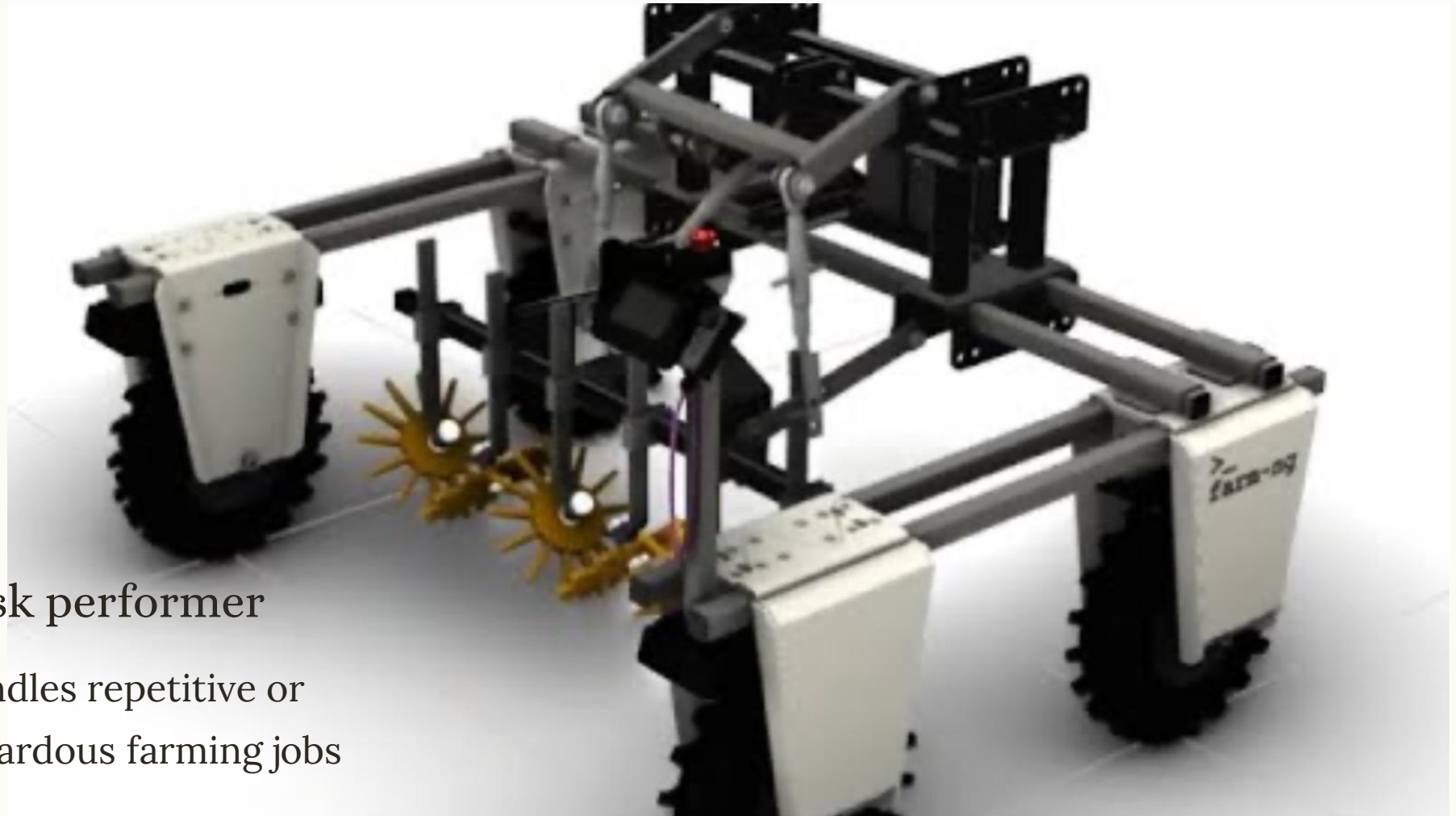
Agricultural support

Enhances farming operations without constant supervision



Task performer

Handles repetitive or
hazardous farming jobs



Why Use Robotics in Agriculture?

Efficiency

Works 24/7 without fatigue

Completes tasks with precision

Cost Savings

Reduces labor expenses

Optimizes resource usage

Sustainability

Enables precision agriculture

Data-driven decision making



Key Components of Autonomous Systems



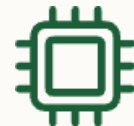
GPS
Navigation

Precise
location
tracking
within fields



Vision
Systems

Cameras
identify crops
and obstacles



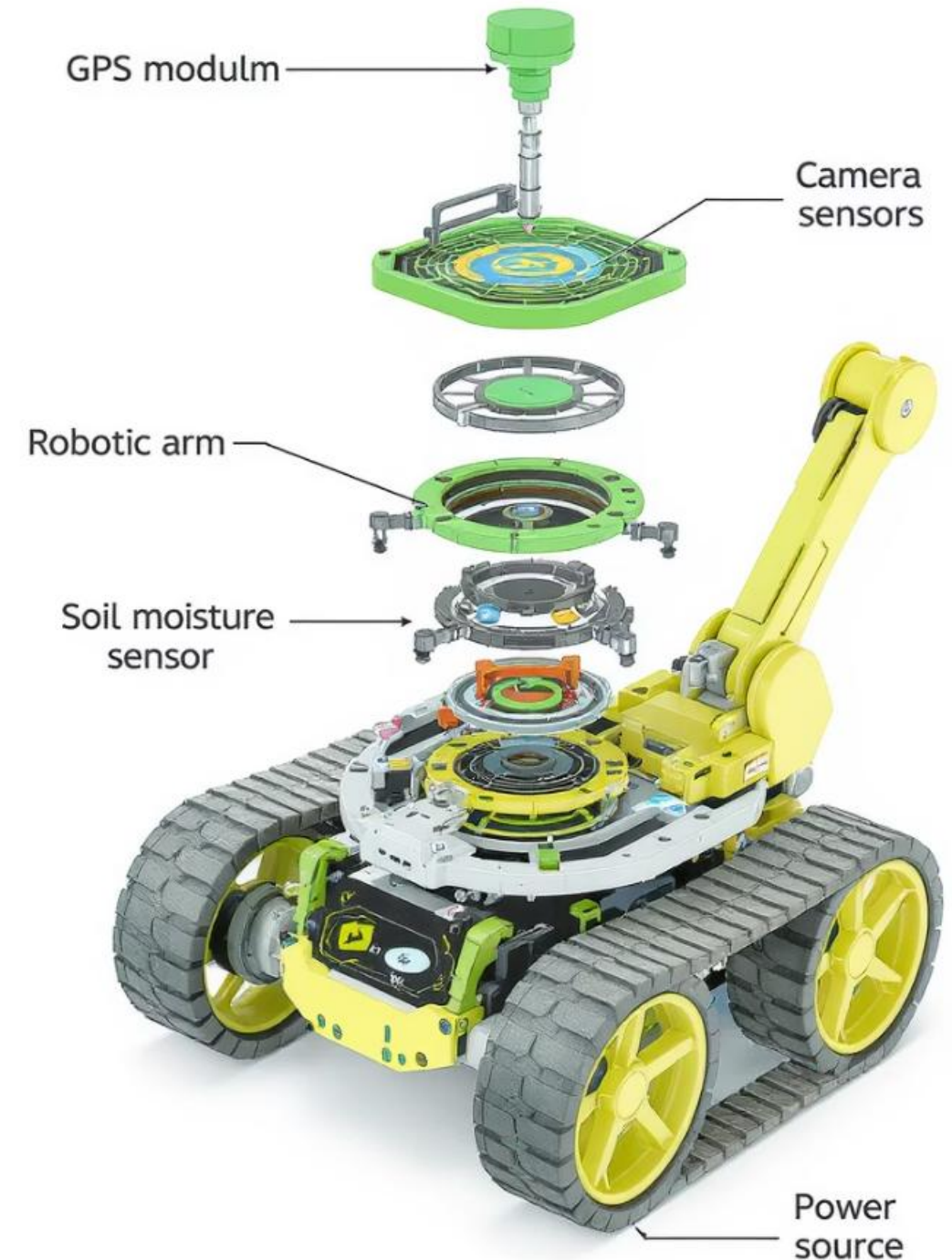
Onboard AI
Makes real-
time decisions



LiDAR

Creates
detailed 3D
maps

Agricultural robot





Follow Mode in Action



Detect Person

Vision systems identify human target



Calculate Path

AI determines optimal following route



Maintain Distance

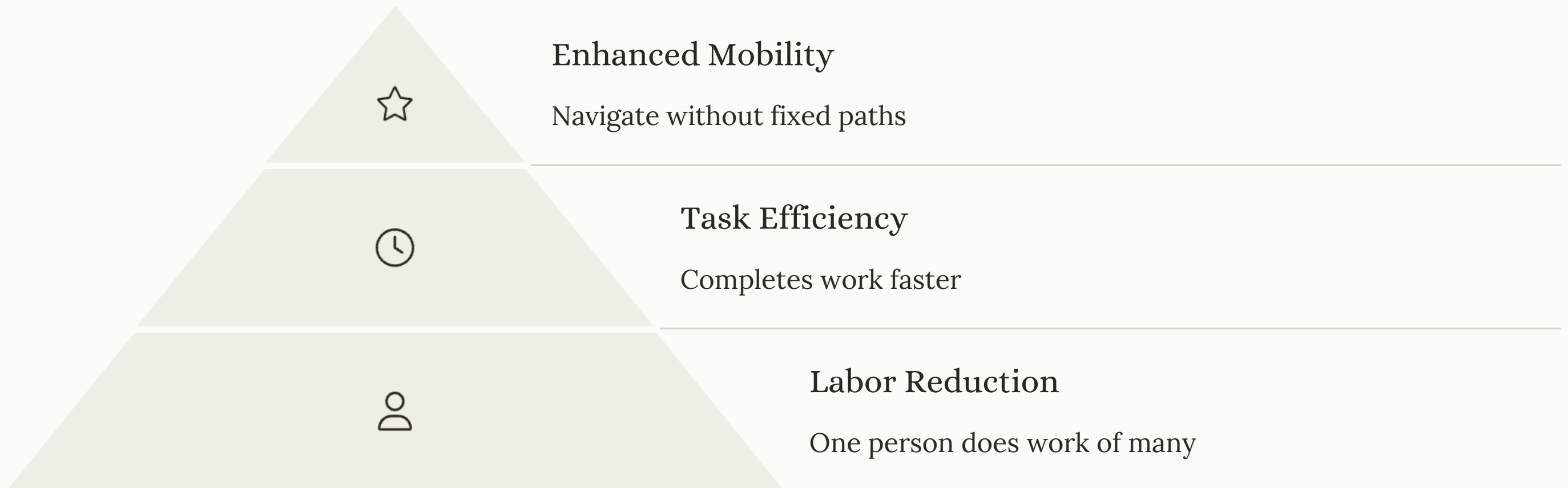
Sensors keep safe spacing



Adjust Speed

Matches pace with human movement

Follow Mode Benefits





Point A-B Navigation

Set Coordinates

Farmer defines start and end points on digital map

Create Path

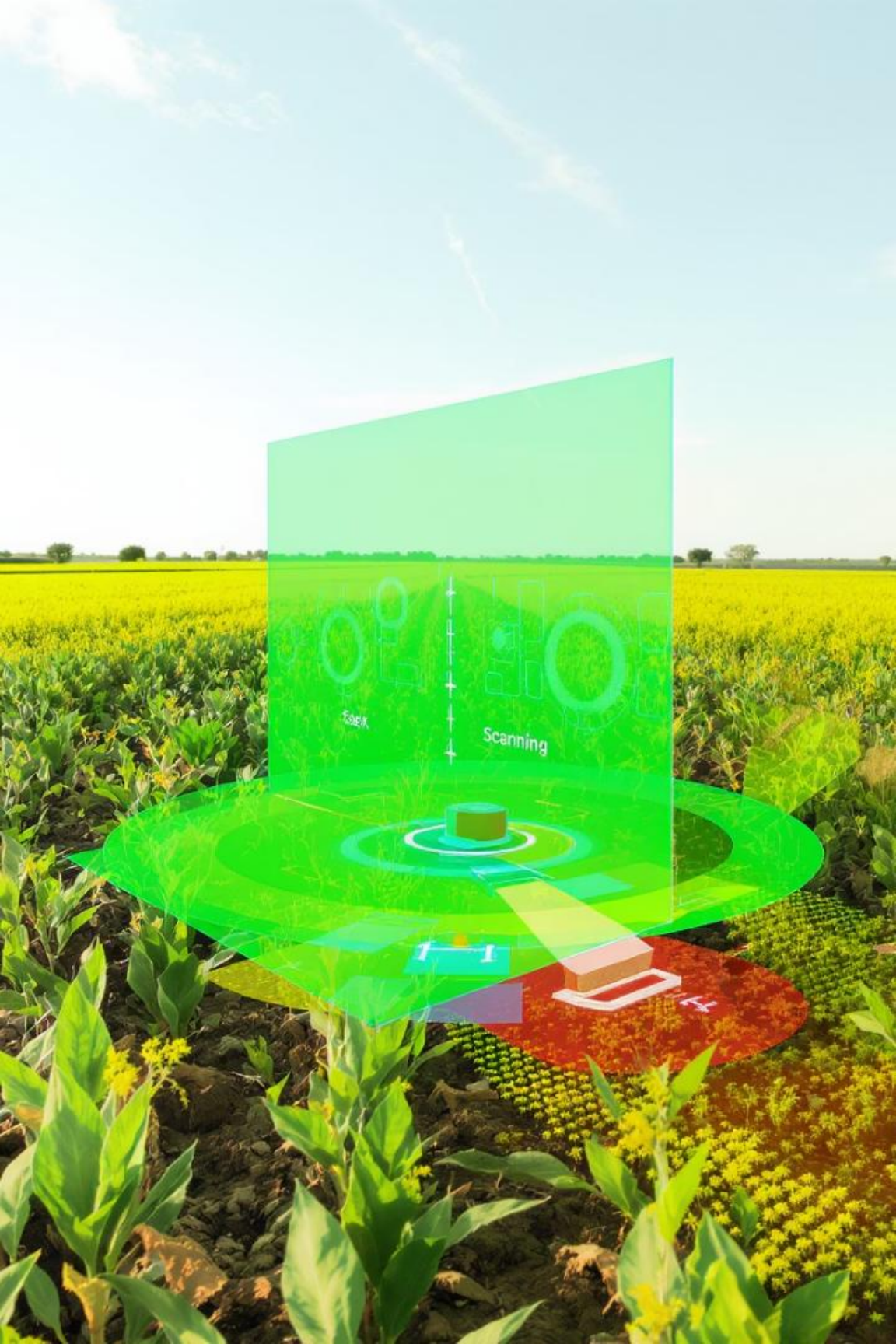
Robot calculates optimal route between points

Autonomous Travel

Machine navigates using GPS and internal mapping

Task Completion

Robot performs programmed actions along route



The Role of 3-D Vision

Spatial Awareness

Creates detailed 3D maps of environment

Understands field geography and layout

Obstacle Detection

Identifies and avoids hazards

Distinguishes between crops and objects

Precision Movement

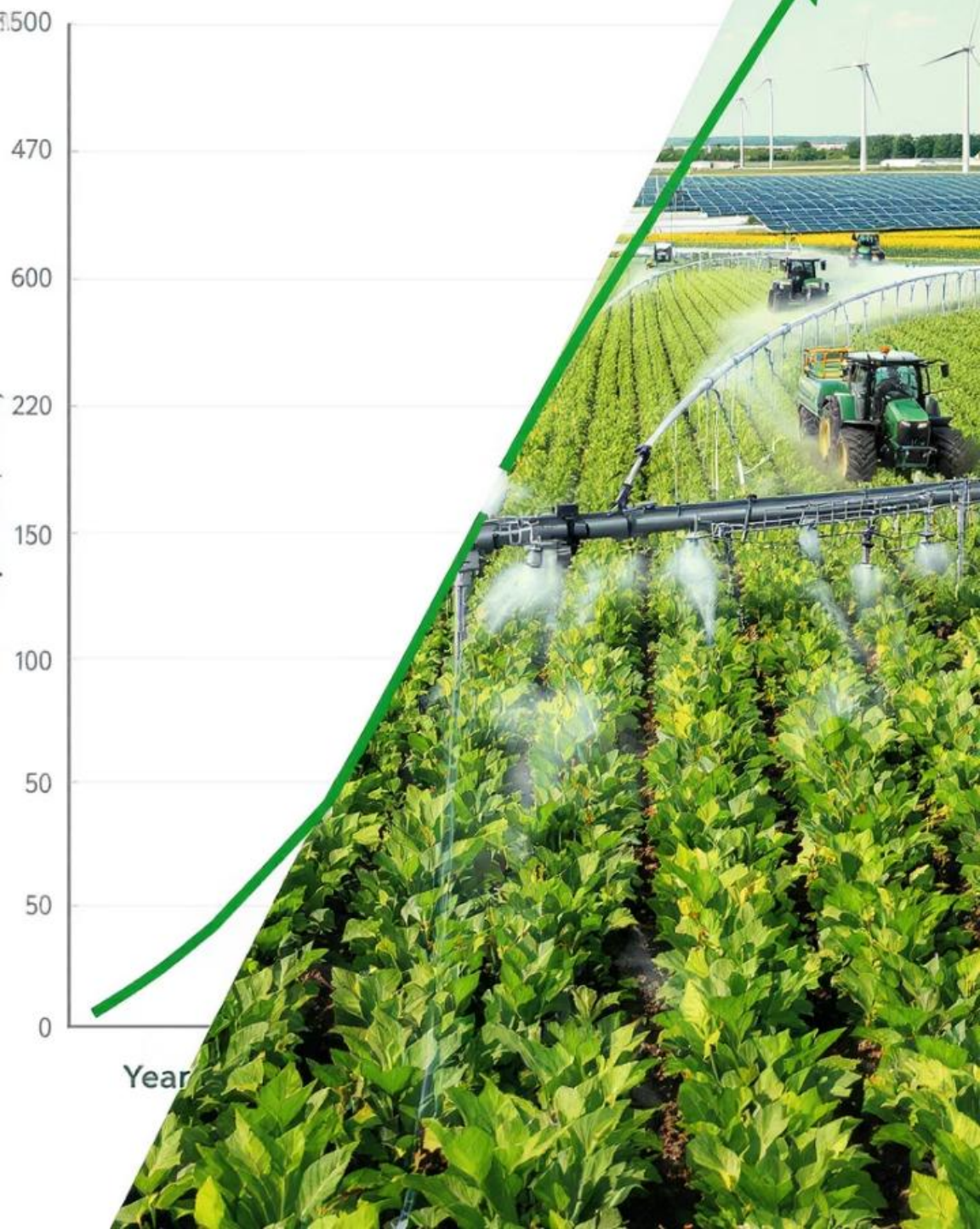
Navigates between crop rows without damage

Maintains optimal distance from plants

Automated Spray Technology



World Population Growth



Why This Technology Matters

30%

Labor Savings

Reduced workforce requirements

25%

Chemical Reduction

Less environmental impact

40%

Yield Increase

More food from same land

10B

Population by 2050

More mouths to feed

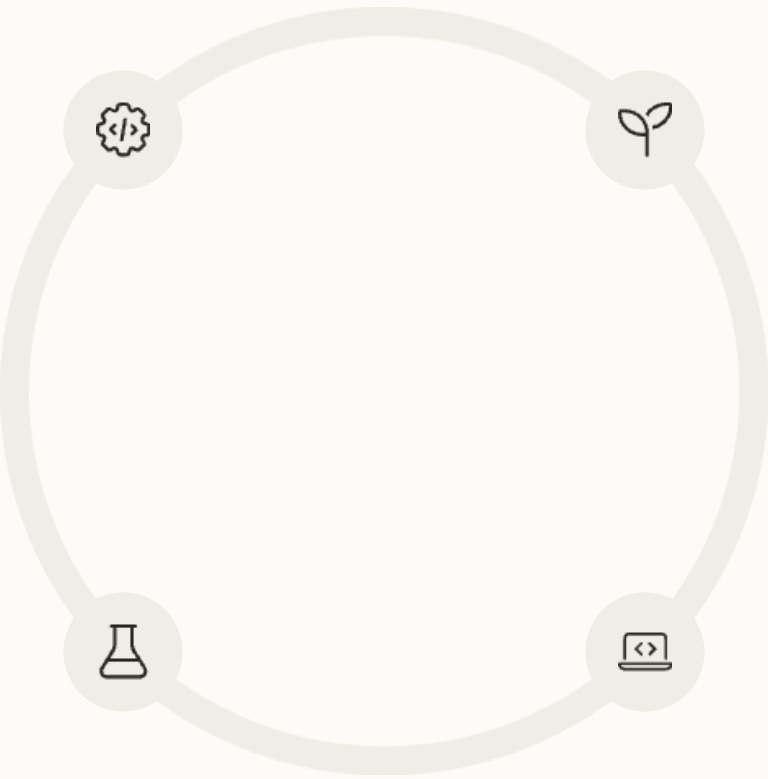
Career and Educational Pathways

Robotics Engineering
Design and build agricultural machines

Environmental Science
Study sustainable agricultural methods

Agri-tech Innovation
Develop new farming technologies

Computer Science
Create AI and software systems



Key Takeaways & Questions



Technology Integration

Multiple systems working together



Agricultural Transformation

Farming is becoming high-tech



Your Ideas

How would you improve farm robots?