AGRI-DRONE AI

Engineering Methods 2025/2026

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Introduction

The project focuses on the development of a drone-based system for agricultural monitoring using artificial intelligence.

Agenda

Overview

- Drones collect aerial data on crops which gets sent to the server and analyzed by an AI algorithm
- Decets pests, diseases, nutrient deficiencies, and irrigation needs.
- Provides actionable recommendations to farmers.

Goals

- Optimize precision agriculture in the Slovak Republic.
- Increase crop yields by **15–25%**.
- Reduce pesticide use and promote sustainable farming practices.

System Architecture

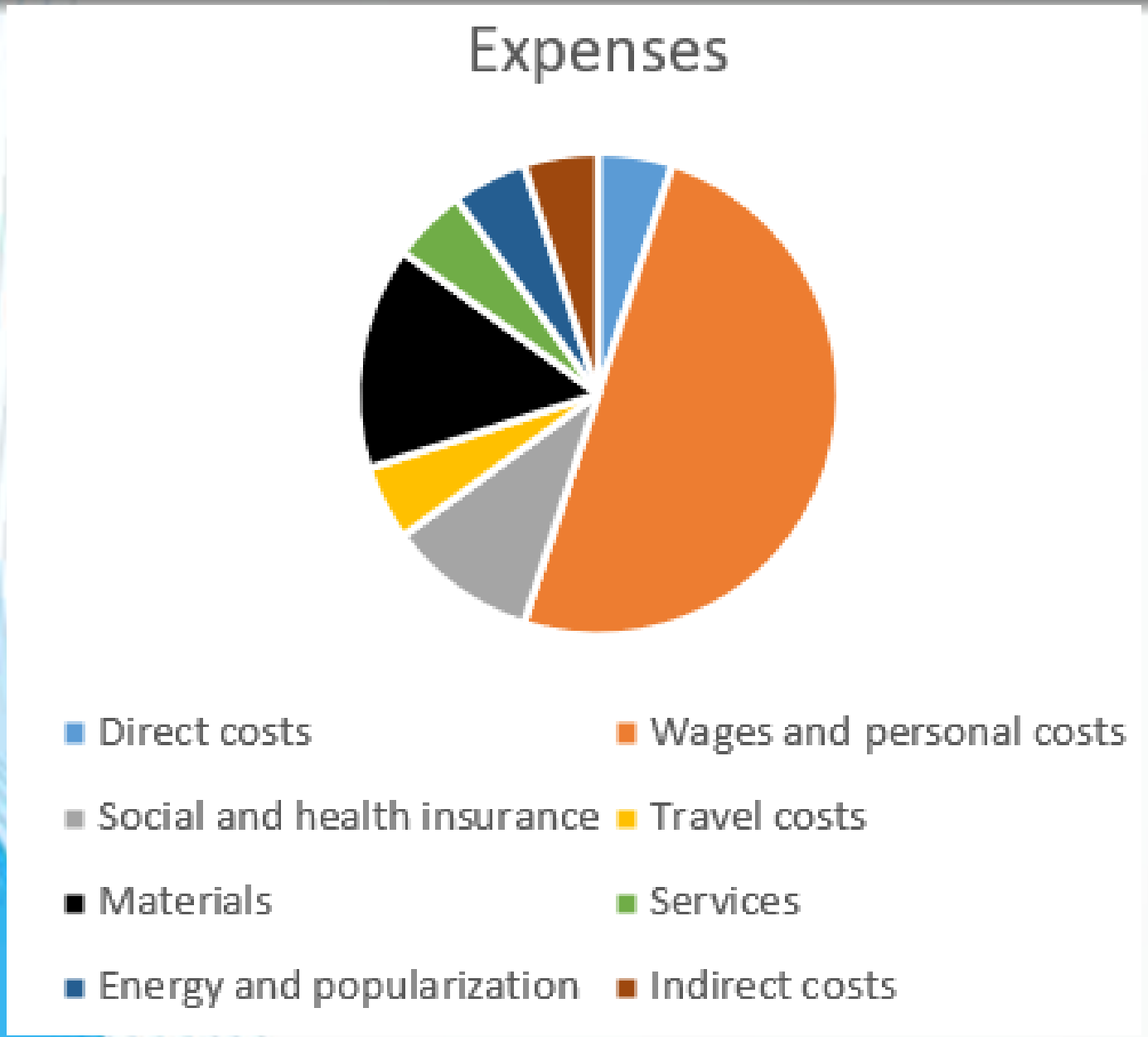
- Drone platform : DJI Agriculture, PrecisionHawk, and other modern UAVs.
- Real-time image recognition and predictive analytics AI system.
- Combines multispectral drone imaging, weather data, and satellite imagery.
- Onboard AI for fast field-level analysis.

Diagram slide

Development Phases

- 1) Analysis of existing drone technologies and AI frameworks.
- 2) Development of AI models for image recognition and predictive analytics.
- 3) Field testing and performance measurement.

Budget slide



Market and Impact

- Growing EU agricultural drone market projected to reach **€7.46 billion by 2025**.
- 20% expected increase in efficiency through precision monitoring.
- Economic savings for farmers and environmental protection through reduced chemical use.
- Strengthens Slovakia's position in agricultural innovation.

Conclusion

- AGRI-DRONE AI represents a fusion of AI, drone technology, and sustainable agriculture.
- Contributes to food security, efficiency, and environmental responsibility.
- Aligns with European innovation and climate goals.