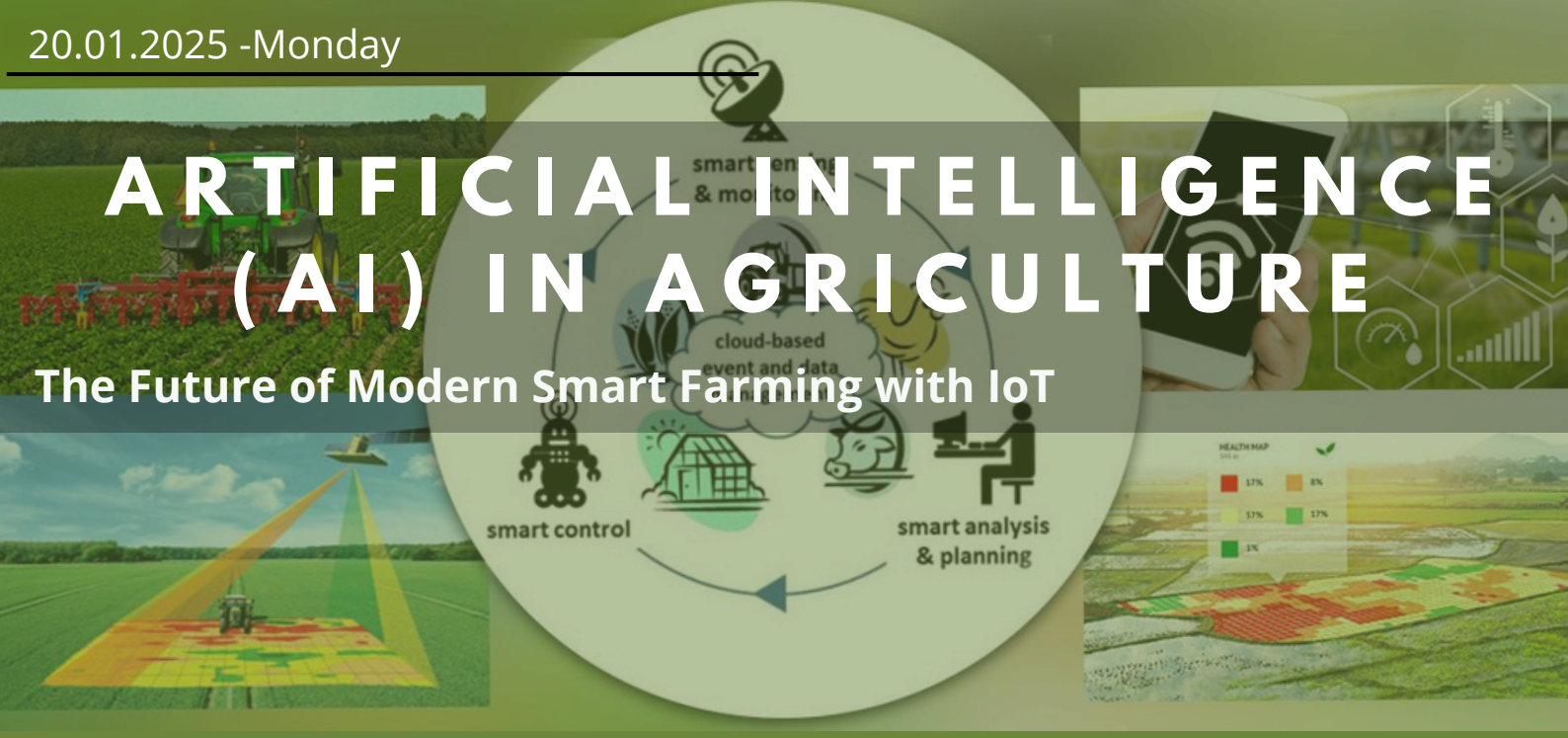
20.01.2025 -Monday

ARTIFICIAL INTELLIGENCE (AI) IN AGRICULTURE

The Future of Modern Smart Farming with IoT



Summary of the visit

We have recently embarked on joureney to learn more about the new agriculture system, as agriculture is a key part to our survival as human beings on this planet. This visit has enlightened us on the new developments of the technologies and AI, which has included but not limited to; Percision farming by analysis. Modern livestock technology by, monitoring livestocks behaviour and more. Crop ans soil analysis which analyze crop and soil, as well as, Irrigation Management, Crop forecasting, Weed and pest protection, Harevesting, Pollination via drones, and Crop monitoring. We expand further in detail later in

The issues discussed

We have explored how Artificial Intelligence (AI) is changing agriculture and shaping the future of smart farming with the Internet of Things (IoT). Crop monitoring technologies enable farmers to check plant health in real-time, while precision farming enhances resource usage and yield. Advancements in livestock farming, such as smart collars and automatic feeders, raise animal care and productivity. AI analyzes soil and crops, providing valuable insights for better harvests and early detection of weeds and pests for quick treatments. Smart irrigation systems deliver the right amount of water based on conditions, and automated harvesting technologies make crop collection easier. Overall, the focus was on how AI and IoT are revolutionizing agriculture for a more sustainable future.

Group members:

1. Nur Rihhadatul Arifah Binti Mohd Nazaruddin
A24CS0166
2. Nurul Ain Binti Mohd Sani
A24CS0172
3. Abrar Altag Mostafa Nourelgalil
A24CS0001
4. Mutallib Afsahov
A24CS0024
5. Anika Maliha
A24CS4007
6. Hamza Ahmed Ahmed Mohamed ElKhoudary
A24CS0013

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Tecnologies

1. Crop Monitoring using AI
   AI systems check crop health in real-time, helping farmers grow better plants.
2. Precision Farming
   This approach uses technology to understand different parts of a field, allowing farmers to use resources wisely and boost their harvests.
3. Modern Livestock Farming Technologies
   New tools like smart collars and automatic feeders help manage animals better, improving their health and farm productivity.
4. Crop and Soil Analysis using AI
   AI tools examine soil and crops, giving farmers helpful tips for improving growth and yields.
5. Crop Forecasting
   Advanced tools predict how much crop will grow based on past data, helping farmers plan for the market.
6. Weed and Pest Detection using AI
   AI can spot weeds and pests early, allowing farmers to treat problems quickly and reduce chemical use.
7. Irrigation Management using AI
   Smart watering systems use AI to give crops the right amount of water, based on current weather and soil moisture.
8. Harvesting
   Automated harvesting machines make collecting crops easier and faster, saving time and labor costs.

Reflections

The industrial visit showcased how AI and IoT revolutionize agriculture, focusing on efficiency, sustainability, and productivity. Key insights include:

1. **Precision Farming:** AI minimizes waste and optimizes resource use.
2. **Better Crop Yields:** Real-time monitoring improves growth and quality.
3. **Livestock Care:** Smart tools enhance animal health and productivity.
4. **Automation:** Saves time, labor, and resources.
5. **Pest Control:** Early detection reduces chemical use and protects crops.

Overview:
AI and IoT address global agricultural challenges by improving sustainability, efficiency, and food security. These innovations ensure smarter farming, better livelihoods, and environmental care for the future.

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