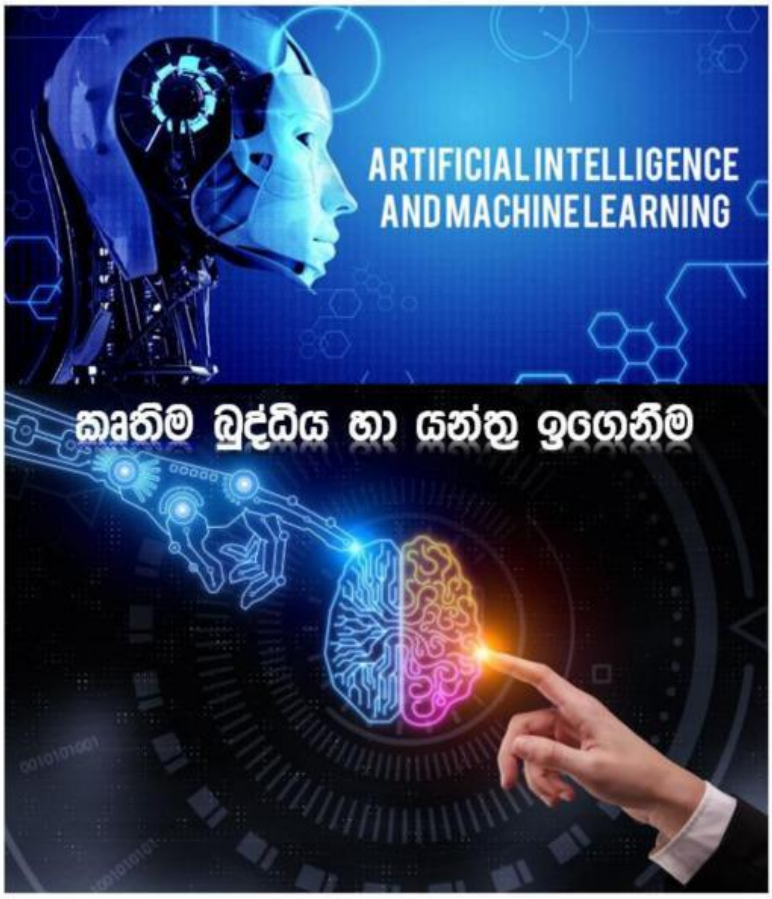
Project 179

DP EDUCATION

Coding School

AI and Machine Learning



Smart homes and Cities and infrastructure

AI technology used in Smart Homes and Cities and Infrastructure is used to make users' daily lives easier, improve the efficiency of urban development, and implement projects tailored to needs.

Smart homes

AI-driven smart devices automate home systems based on user preferences and behaviors. This includes automatic control of indoor lighting, temperature, and security.

Smart Cities

AI advances traffic management, smart construction, and energy efficiency. AI helps to better organize vehicle routes, traffic patterns, and urban infrastructure.

Infrastructure

Using AI to automatically manage power grids, water supply systems, and civil engineering, the infrastructure is maintained efficiently and environmentally.

1. AI for Smart Homes

- **Objective**: Using AI to operate home automation systems, control home appliances according to user needs, and manage power, security and facilities.
- **Example**:
  - **Google Nest**: Google Nest uses AI to manage temperature control, lighting control, and security. By analyzing user patterns, systems automatically manage tasks as needed.

  - **Amazon Alexa**: AI-enabled Alexa controls smart home devices, manages tasks, and schedules daily tasks.

2. AI for Smart Cities and Infrastructure

Objective: Urban development, vehicle and safety control, and monitoring of city controllers and infrastructure systems using AI to make people's lives easier. Efficient operation of city traffic, electricity supply, and waste management.

- **Examples**:
  - **Sense able City Lab**: MIT Sense able City Lab uses AI to facilitate city traffic, waste management, and smart security.

- **Cisco Smart Connected Communities**: AI and IoT technologies are used to improve urban efficiency and control traffic, security and electricity supply.
- **3. Traffic Management**

- **Objective**: Efficient control of vehicular traffic in cities using AI. AI will reduce congestion and congestion in traffic, making traffic easier.
- **Examples**:
  - **IBM Intelligent Transportation**IBM Intelligent Transportation AI provides cost and time savings by analyzing city traffic
  - **Siemens Mobility**: Siemens Mobility uses AI technology to improve the efficiency of vehicle traffic.

4. Street Lighting and Energy Management

- **Objective**: Automatic control of city street lighting systems and electricity supply using AI. Saving lighting systems and electricity by operating generation systems correctly as per requirement.
- **Examples**:
  - **Enlighted**: The Enlighted AI system automatically and efficiently controls power and street lighting.
  - **Telensa**: The AI-enabled Telensa system automatically controls street lighting systems, providing lighting control tailored to vehicles and people.

5. City Security

- **Objective**: Improve city security and control other security systems using AI. Other security functions automatically analyze and configure urban security.
- **Examples**:
  - **ShotSpotter**: ShotSpotter AI detects instances of firearm use in cities and reports to security services.
  - **Brief Cam**: AI-enabled Brief Cam efficiently analyzes urban notes and surveillance output to help boost security.

6.Water and Waste Management

- **Objective**: Efficient implementation of water supply and waste management in the city using AI technology. AI responds on demand, saving cost and time.
- **Examples**:
  - **EmNet**: The AI system EmNet improves water management in the city, controlling water supply and water use.
  - **Rubicon Global**: Rubicon automates waste management using AI, enabling minimal impact on the environment.

The use of AI technology in smart homes and city infrastructure will contribute to improving the quality of life and making people's daily lives easier.

In this lesson we will study and gain knowledge about the use of AI in our daily life. Although the use of AI technology can achieve many good results, there are also some obstacles and challenges with it.

Let's study the disadvantages of this use of AI to proper human life

1. රැකියා අහිමිවීම

- Automation of management functions and systems with AI methods has reduced the need for human labor in many areas. This can lead to job losses, especially in the manufacturing, service, and transportation sectors.

2. Unique decision making

- Because AI systems often work on older training data, they can make decisions with precision in situations where different human decisions should be made. This results in decisions that do not match customer or user preferences.

3. Privacy of Personal Information

- AI methods collect large amounts of user data, especially in the areas of internet modification and services. Because user data is subjected to far more detailed investigations, user privacy may be affected. This results in a decrease in personal information security.

4. Loyalty and injustice

- AI systems can be prone to biases based on the data used to make recommendations. Difficulty identifying biases in data presented to AI algorithms can lead to unfair activity among users.

5. The price of AI technology

- Developing and maintaining AI methods and systems is extremely expensive. Developing a proper AI system requires a lot of research and development, investment and resources before it becomes profitable.

6. Lack of understanding of AI technology

- Lack of understanding of AI technology by many people creates doubts and dangers about the accuracy of results using new creative technologies. As knowledge in the field of AI is still restricted to a limited number of people, there are problems with its correct use and application.

7. Legal and social challenges

• When AI technology is used, many legal and social issues arise related to it. AI systems create prototypical trends in human rights and social concepts. Even debates about sentient AI can arise here.

With the development of AI technology, its strengths and weaknesses are also directly related. Proper implementation and use of AI requires caution and testing.