Seminar Topic Summary Report

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Institution Name: Basaveshwar Engineering College, Bagalkot

Department of Computer Applications (MCA)

Course: MCA

Semester: II

Seminar Topic : AI in Military

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1. Introduction

Artificial Intelligence (AI) has become one of the most transformative technologies in the modern world. In the realm of defence and military, AI is playing a critical role in enhancing operational capabilities, improving decision-making speed, and increasing the efficiency and safety of missions. The integration of AI into defence strategies marks a shift from traditional warfare to technology-driven combat and intelligence operations.
The importance of AI in military systems is rapidly growing due to its ability to handle large-scale data, automate complex operations, and adapt to dynamic environments. This seminar aims to explore how AI is reshaping the defence landscape globally and the implications of this transformation for national security, ethics, and future warfare.

2. Seminar Topic Details

Title: Artificial Intelligence in Military
Area/Domain:AI in Military Automation, Autonomous Weapons, Surveillance Systems
Keywords: Artificial Intelligence, Machine Learning

3.Topic Summary

Artificial Intelligence in military is revolutionizing the way armed forces operate and respond to threats. From autonomous drones and robotic soldiers to real-time surveillance systems and predictive maintenance tools, AI is transforming defence technology at every level. It assists in processing vast datasets for intelligence analysis, enhances battlefield awareness, and even supports strategic decision-making.

Moreover, AI is used in military training through simulations that provide realistic combat scenarios. Countries like the USA, China, Russia, and India are investing heavily in AI-based defence technologies, indicating its critical role in future warfare. However, the use of AI also raises ethical concerns, especially regarding the deployment of autonomous weapons.

In conclusion, AI in military is not only a technological advancement but also a strategic necessity in today's geopolitical climate. It enhances defence capabilities while demanding responsible governance and policy frameworks.

4.Relevance to MCA Curriculum

The seminar topic aligns with the MCA curriculum in the following ways:

- Artificial Intelligence and Machine Learning: Core concepts of training models and neural networks are applied in defence automation.
- Data Analytics and Data Mining: Used for intelligence gathering, threat prediction, and operational analysis.
- Robotics and Automation: Key to developing unmanned vehicles and robotic defence units.
- Computer Vision and Image Processing: Helps in surveillance, drone navigation, and facial/object recognition.

5.Learning Objectives

1. Understand the role of AI in modern military operations.
2. Identify and explain key AI technologies used in surveillance, combat systems, and intelligence gathering.
3. Analyze case studies on how AI is being used by various countries in their defence strategies.
4. Explore ethical and legal issues surrounding AI-enabled military technologies.

6. Expected Outcome

- Gain a comprehensive understanding of how AI is applied in defence operations.
- Be able to evaluate the effectiveness and challenges of using AI in military contexts.
- Understand interdisciplinary connections between AI, cybersecurity, and data science.
- Develop awareness of ethical considerations in deploying AI for warfare.
- Be inspired to pursue careers or research in defence technology, AI development, or national security sectors.

7.References

- Ministry of Defence, India – https://mod.gov.in
- NATO AI Strategy Documents – www.nato.int
- IBM Security and AI in Defence – www.ibm.com
- McKinsey Report on AI in Defence – www.mckinsey.com
- IEEE Journals on AI in Military Applications – ieeexplore.ieee.org

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