**Introduction**

In this project, it aims to develop an efficient and autonomous warehouse management system using a swarm of robots. Each robot is designed to perform tasks such as moving and organizing inventory within a warehouse. To achieve this, it must be implemented using simulations such as Unity together with the programming language C#.

**Project Overview**

Each robot in this system consists of a base equipped with wheels, allowing it to navigate the warehouse. Attached to the base is a structure with an arm designed to pick up packages and place them into a basket structure located near the arm. This enables the robot to carry multiple packages simultaneously. The robots are equipped with GPS sensors for precise location tracking, and remote Wi-Fi connections for task reception.This simulation ensures that each robot can perform fundamental operations accurately.

The Unity simulation consists of multiple robots working collaboratively to collect boxes from a warehouse and transport them to the unloading area. To efficiently collect the boxes, scripts have been implemented that allow the robots to be controlled as a swarm. This swarm control assigns the optimal robot to each task based on specific metrics and employs a training system that adjusts the weights in the assignment formula to achieve optimal results. Additionally, each robot is completely autonomous, with functions for calculating and following optimal routes.

By using Unity and C#, it emphasizes the efficiency of task distribution within the swarm, ensuring that tasks are allocated dynamically among the robots to maximize overall efficiency.

**Importance of Skills and Concepts Learned**

Through this project, it can help to apply various skills and concepts, including robotic kinematics, and swarm intelligence. The use of Unity and C# help to create a scalable and efficient simulation environment. This project not only demonstrates the practical application of these skills but also highlights their importance in developing advanced autonomous systems for real-world scenarios. And lastly, this module enhances skills of students in unity and C# programming language.