**CHAPTER 1**

**INTRODUCTION**

1.1OVERVIEW OF THE PROJECT

A Distributed Denial of Service (DDOS) attacks [1] to prevent legitimate users from accessing an online service or applications by suspending the hosting servers. To generate the attack, the attackers use numerous compromised or controlled sources to generate massive amounts of packets or requests. These requests cause the target system to become overburdened, causing it to operate poorly and become inaccessible to legitimate users. Based on TCP/UDP protocols, DDOS attacks are divided into reflection-based attacks and exploit-based attacks

A DDOS attack sends different requests (with IP spoofing) to the target web assets to exceed the site’s ability to handle various requests, at a given time, and make the site unable to operate effectively and efficiently – even for the legitimate users of the network. Typically, the target of various DDOS attacks are web applications and business websites; and the attacker may have different goals.

Attackers send packets to reflector servers with the target victim's IP address as the source IP address to overwhelm the victim with response packets. The Transmission Control Protocol (TCP), the User Datagram Protocol (UDP), or a combination can be used in these attacks. SSDP and MSSQL are TCP-based attacks, while NTP TFTP and Char GEN are UDP-based attacks. SNMP, NETBIOS, LDAP, and DNS are examples of attacks that can be carried out using either TCP or UDP.

The attacker uses the Simple Network Management Protocol (SNMP) [7] to send a huge number of SNMP queries to a huge number of connected devices, each of which responded with the falsified address. As more devices respond, the attack volume rises until the target network is brought down by the cumulative volume of these SNMP responses. NetBIOS [8] is to allow applications on different computers to communicate and establish sessions to access shared resources and communicate with one another through a local area network

Machine learning is a branch of artificial intelligence (AI) and computer science which focuses on uses of data and algorithms to imitate the way that humans learn, gradually improving its accuracy. Machine learning is a growing technology which enables computers to learn information from the past data

Machine Learning Algorithms are implemented in the datasets to predict the results and analysis. In unsupervised Learning, a machine finds the patterns in unknown objects by grouping similar objects together. For examples of such learning includes Recommender systems and Market Based Analysis.