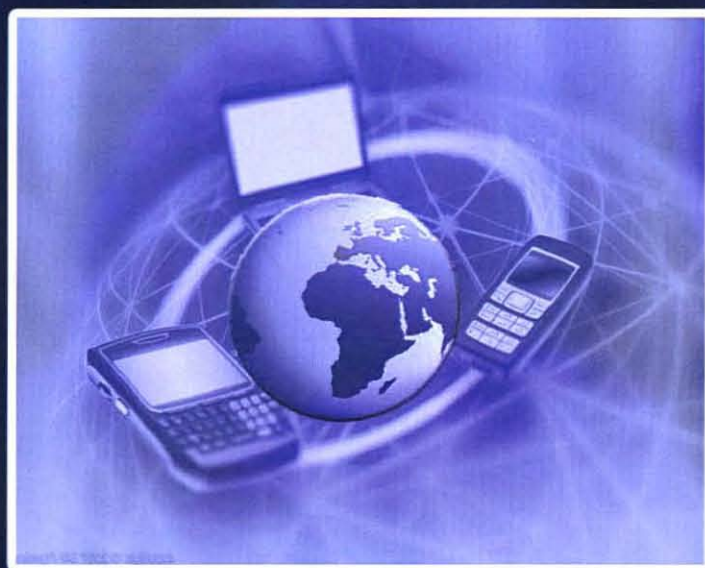


Research Issues in Wireless

Communications and Networking

Farhat Anwar
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CHAPTER 33

INFORMATION AND COMMUNICATION PRIVACY IN WIRELESS SENSOR NETWORKS

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33.1 INTRODUCTION

This chapter places special emphasis on sensor networks applications in a battlefield. When a sensor network is used to monitor soldiers' movements in a battlefield, information about the soldiers' whereabouts is sent back to the base station and accessed by commanders in the headquarters as shown in Figure 33.1. Before the fight, planes fly over the battlefield and deploy the sensors. These sensors organize themselves into a network and transmit data collected from the battlefield and send them back to the base station [1, 2].

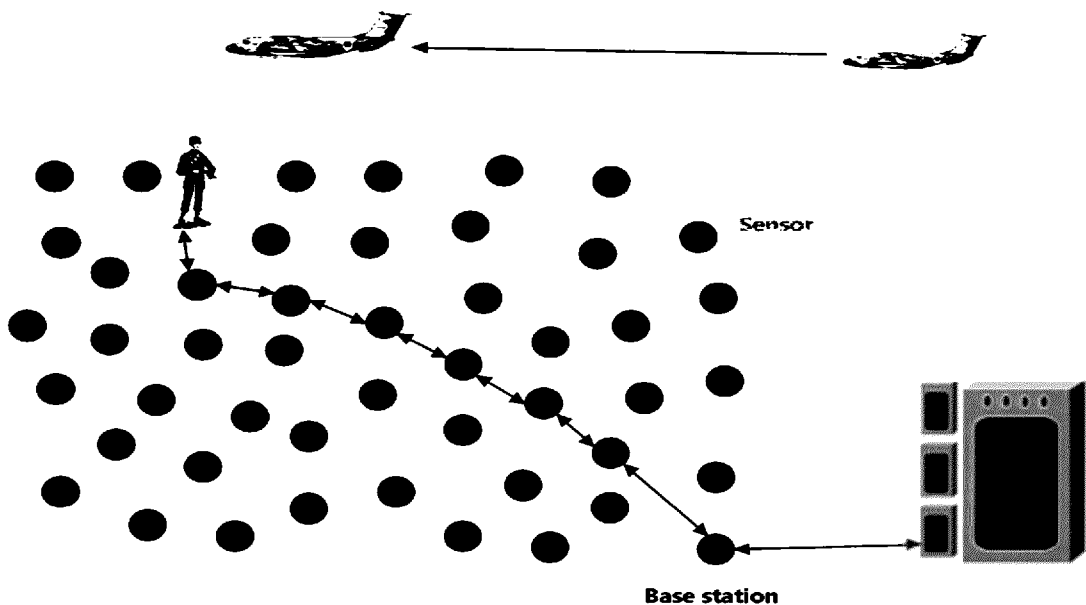


Figure 33.1: Application of Sensor Networks in a Battlefield

In a battlefield, the sensor network is operated in a very dangerous environment. Attackers such as enemy soldiers will try to compromise the network. They either passively eavesdrop the communications in order to get information or physically capture and destroy the sensor nodes that they found as shown in Figure 33.2. The possible attacks are as follows [2, 3]:

1. A single enemy soldier can carry equipments that can monitor the traffic in a small area. He can eavesdrop the communications around himself and try to trace the source of messages transmitted in the network. The enemy soldier may find the information of our soldiers' location through tracing back to the messages' source. We call this kind of attack "mote-class attack".