

The Airbase Protection System Using LTE and WIFI

Surveys, Reviews and Issues in Ground Surveillance

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Abstract—This paper surveys, reviews and describes an airbase (an airport) protection system and airport surveillance system based on wireless network and surveillance technology. The goal of this paper is to present the proposed airbase protection system in terms of ground surveillance that increases the performance, efficiency and capability to the system and users (such as soldier, officer, air traffic controller etc.) by using Long-term Evolution (LTE). The commander can manage, resolve and decide the situation awareness to protect the critical incidents. If the accidents occur, it will affect the stability of military, airbase, population and country. Furthermore, this paper shows that the current trend is to provide wireless sensor networks, multi cameras and airport security checkpoints.

Keywords—Airport Protection; Wireless Network; Long-term evolution; Airport

1. INTRODUCTION

The airbase and area of military's airport are protected by The Air Force Security Command. It has been assigned to all airbases under the order of the commander - in - chief of each air force base. The Air force Security Commander is responsible for the ground security operation. Then, the chief of an air force base in military operation is responsible for the airbase operation and the chief of staff of air force base is responsible for the overall military operations.

According to the mission of The Air Force Security Command, the area is divided into 3 separated levels of protection.

Level 1 is very important and high level to pay attention because the buildings or areas in this level are restricted such as airplane parking, armory, runway etc. So the surveillance guards must watch out and be on duty for this area in level 1.

Level 2 is less important than level 1. This level covers the air force office such as Air Police offices and Air Force offices. These buildings or areas have the air force officers to inspect areas.

Level 3 is the least important. This level is the official residences (houses, apartments) and barracks.

Each airbase is also divided its area into small sectors. Sectors are not formal standard. The number of sectors depends on the decision of the commander - in - chief of air force base and commonly an air force base is divided into 3 sectors (West, South, East or North, South, West etc.) based on environment, sizes, defensive measures, preventive measures and rules

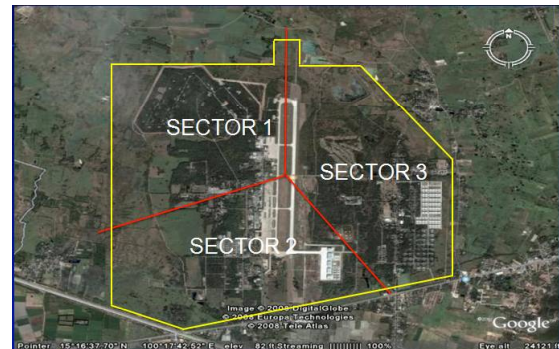


Fig. 1. The sector's areas for protection

The situation awareness is more important when the enemies or intruders such as animals, people, unidentified troops or thieves are breaking into the airbase. The surveillance system assesses an officer to monitor a given area of interest by using a camera or multiple cameras. The real-time surveillance system detects and tracks the objects in motion and provides automatic warning in case of suspicious activities such as unidentified objects and restricted zone monitoring [1]. A camera network using for the airport security checkpoint as the system may track the movement of each passenger and carry-on bag, continuously maintains the association between bags and passengers, and verifies that passengers leave the checkpoint with the correct bags. [3] The wireless network accelerometer-based sensor nodes may detect airport intrusion events such as fence climbing, kicking and cutting [2]. The airport surface wireless communications are used in Air Traffic Management or Air Traffic Control, Aeronautical Information Services and Meteorological Data, Aircraft, Airport Authority, Airport Infrastructure [4]. Furthermore, the human or military animal units are the surveillance units in airbase likes. The units include The Airbase Surveillance (motorbikes, vehicles), The Airbase