EQUIPMENT, SECURITY PERSONNEL TRACKING AND LOCALISATION USING GEO-LOCATION TECHNIQUE

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ABSTRACT

Insecurity has been a challenge faced by developed and developing countries with Nigeria being a typical example. This work intends to adddress these problems using remote monitoring technique with geo-location facilities for real-time monitoring and tracking of security personnels and equipments. This paper presents a system that comprised of both hardware and software resourses. The hardware resourses is based on a controller, a sensing block, a communication unit and power supply. The sensing unit whose major component is the Ublox Neo 6 Global Positioning System (GPS) module, captures the location after locking a minimum of four satellites, it then passes the location data to the controller (Arduino Uno Mini Pro). The controller interprets the data captured and send it as Short Message Service (SMS) through the communication unit (Sim 800L GSM module) to the administrator. A Graphic User Interface was developed to help the administrator interpret the location data received via SMS to a visible map. Tracking details saved into the database system. The result obtained from testing of the device through different location at the Testbed in Federal University of Technology Minna, Nigeria showed that the system achieved an average accuracy of 70 % in identifying the location and the sensitivity of the device in areas where satellite cannot be detected was recorded to be 90 %. The accuracy level depend on to the number of satellites captured in areas under consideration. This numerical value shows that the system is reliable and can be used in tracking.

KEYWORDS: Global Positioning System (GPS); Global System for Mobile communication (GSM); Short Message Service (SMS); security

1.0   INTRODUCTION

Nigeria is a country in West Africa and has enjoyed several awards for its outstanding performance whenever her security agents are on foreign peace mission to maintain peace like the United Nations, The Economic Community of West African States Monitoring Group (ECOMOG) was a West African multilateral armed force established by the Economic Community of West African States (ECOWAS). ECOMOG African Union (AU) just to mention a few. However, several security agents amongst them tend to undermine this good record.

Today, Nigeria is facing security challenges as life and property are threatened by the activities of armed bandits and criminals. In some cases, security agents saddled with the

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