CUSTOMIZED MILITARY GRID REFERENCE SYSTEM FOR REAL TIME GROUND OPERATIONS OF SRI LANKA ARMY

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ABSTRACT

Customized Military Grid Reference System for Real Time Ground Operations of Sri Lanka Army is a concept of a system where soldiers of Army can create mission specific maps for ground level operations. Instead of standard 1:50000 maps they would be able to select the area of map to be generated with real time aerial images as an overlay to the generated map.

Most of the times soldiers face difficulties in using existing printed maps because they have to use several adjoin sheets for the missions. Further maps are not updated regularly. Proposed system was designed to overcome the practical difficulty of that.

As soldiers are familiar, the existing military grid coordinates were used in the system. Google maps and aerial images were tested as the base map of the system. Google satellite view provided updated base map in a cost effective way for the system. During the study, method of aerial photos and inverse perspective mapping were deeply considered.

A secure database was designed for the system with encryption facilities have been used in the system. Three user levels have been assigned as owner, admin and users. The Front end of the system was designed using PHP framework and Database was created using My SQL. The mobile application was created and tested using Ionic2. Accuracy of military grid overlay along longitudes, Accuracy of military grid overlay along latitudes and Accuracy of the distance of two known point in aerial images and maps were analyzed in order to check the errors in existing printed map. It was found that there is a linear error of military grid overlay along longitudes. Unlike along longitudes, the variance of the distance along latitudes were found same with referenced to any longitude was found linear.

Customized Military Grid Reference System for Real Time Ground Operations in Sri Lanka Army is more suitable and recommended for the training exercises in military training establishments such as DSCSC, KDU and SLMA etc.

Key Words: Military Grid Reference, iSpatial, Google API, Limitations of GIS