Modeling and Developing an Interactive Map for Galle Fort, Sri Lanka

B.M.S. Banduthilake*, C. Kariyawasam, and A.M.N. Alagiyawanna

Faculty of Engineering, University of Ruhuna

Abstract

Three dimensional models can be used to express information of a physical appearance of an object compared with images and other two dimensional (2D) media. Sharing details through 3D models can be considered as an attentive idea with several difficulties. A 3D map consists of several 3D models, scattered over a large area. These 3D models can be used to represent houses, important historical and architectural monuments and even the landscape. A group of 3D models can be used to display a set of objects scattered over an area.

Generally, 3D development is done manually. Even though manual development is suitable for small scale 3D models, it is not convenient for larger scale models such as 3D maps. The primary objective of this research was to investigate the problems encountered during the manual development of 3D maps and to find appropriate solutions which are economically feasible and technically viable.

In our research design, it was found that by automating the modeling process, majority of the difficulties in 3D manual development can be mitigated. During practical adaptation, several scripts were written, including instructions to develop 3D models using a 3D modeling software. Meanwhile, attributes and parameters of real world items were stored in a Relational Database Management System (RDBMS). These data were retrieved during the execution time of the scripts and the relevant 3D model was developed.

To demonstrate the concept, Galle Fort, one of the best preserved examples of 17th century coastal fortifications in Sri Lanka was selected as the pilot area. To illustrate the automated procedure, Sketchup was used along with Ruby and MySQL.

Keywords: *Galle Fort, MySQL, Ruby, Sketchup*

* sachindrabanduthilake@gmail.com