Geographic Information Data Supporting Development Platform for Smart City Management in Sam Phran, Nakhon Pathom Province, Thailand

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ABSTRACT

The United Nations predicts that by 2050, the world's population will increase by 2 billion. As a result, the number of mega urban cities will increase in the next 15 years. About 55% of people live in large cities, while 45% live outside urban areas. It is expected that the proportion of residents living in big cities will increase to 68% for Thailand. Currently, the occupancy rate in large cities is about 50%. Consequently, urban development has been undertaken to cope with such situations, including basic public utility management, environmental management, and housing management. Social services such as public health services or education, which cannot be addressed by conventional technology alone, require the application of geographic information technology. Geographic Information System (GIS) is an essential element in city management aimed at achieving smart city status. In this research, the area of Sam Phran Municipality in Nakhon Pathom Province was studied to prepare for the development of an intelligent city. The researcher aimed to analyze and design a geographic information layer based on data from high-resolution photos from drones, employing principles of photogrammetry survey, along with data obtained from Mobile Mapping System (MMS) technology. Additionally, the researcher proposed a smart city model based on analysis and design from geographic information in a three-dimensional system. This model serves as an input factor for the platform to display map data in 3D format, providing information to support policymakers' decisions in urban development.

Keywords: Smart City, Digital twin, Platform, Geographic information