A Study on the Population Distribution Prediction in Large City using Agent-Based Simulation

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Abstract— In the smart city, digital twins replicate buildings, urban infrastructure, and utilities into a virtual space. In this paper, we create a virtual city simulation platform that can simulate the movement of people and present infrastructure such as urban buildings, roads, and public transport to predict urban change and population movement. In particular, we analyze mobile phone statistics data and exploit it as a movement distribution model to replicate the movement of population within a city and between neighboring cities. The urban simulation platform can estimate population movement and various urban problems and infrastructure changes.

Keyword— Modeling and Simulation, Agent based Modeling, Smart City, Digital Twin, Geographic Information Systems

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