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Simulation Game as a Reference to Smart City Management

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Abstract

The purpose of this research is to know exactly what a 'Smart City' and its aspects are. Furthermore, to ensure this 'Smart City' aspects and their problems can be implemented in a game, so the game will be able to teach people about missed problem solving solutions. This research paper will discuss about the influence gained from playing a game upon city management skills, and careful planning on what must be done first, in order to maintain or increase the well-being of the citizen and the city welfare. By implementing real life applicable condition in the game which will be played by a person through a sandbox simulation style of gameplay, the player will be able to learn and experience certain types of city problems and the solutions to mitigate those problems without actually making it occur in a real city with real casualties, so it will be a safe vessel to gain new knowledge or to rediscover old effective methods, regarding city management, through a game. The results will portray, how can 'Smart City' aspects be implemented into a game, and how a city management simulation game can influence other people' actions on their city management knowledge.

Keywords: Computer science; smart city; city management; game education

1. Introduction

Recently, the term 'Smart City' can be heard as the objective of many governor and the city they govern. Right now, there are still cities with poor management system, like poor building placement or space allocation regarding

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the population of the city, which can result in traffic jams. One of the goals of this research is to find a way to be able to share city management knowledge through a game, so that it can be absorbed and understood by the player, thus creating a safe alternative for obtaining the knowledge.

1.1. Smart city

In the current society we live in, there are many cities with varying degrees and living standards which are determined by plenty of indicators, some cities are peaceful and prosperous but not technologically advanced, and some are the opposite of that, which are hostile but technologically advanced. Both of those cities cannot be considered as smart cities because, there are still degeneration inducing factors affecting the cities, which hampers the formulation of a smart city, and they mainly hamper on the development of theese specific smart city characteristics. Those characteristics are [1],

- Wireless City
- Smart Home
- Smart Transportation
- Smart Public Service and Social Management
- Smart Urban Management
- Smart Medical Treatment
- Green City or Environment
- Smart Tourism

In order to formulate a smart city, then the degeneration inducing factors have to be reduced to as minimum as possible. To reduce the degeneration inducing factors affecting a city, there has to be a solid solution, and to find that solid solution, experiments have to be done to the city itself. Once a city has rid most of the degeneration inducing factors, another solid solution to maintain that state and continue developing other beneficial city factors are needed, and if all that has been done and implemented, then a smart city has been formulated.

Smart City is, a city which has put technology and its relation to the citizen and the environment, utilized properly [2], one that has a healthy, clean, tidy, organized, structured and peaceful environment, as well as work and entertainment friendly places with good economic conditions [3,4].

1.2. Simulation game

A game has basic characteristics of having goals and rules [5,6]. Simulation is used to imitate something substantively, which can be used for training purposes [5,6]. A simulation game is the combination of the two which is, a game used to imitate something substantively by having a set of goals and rules, which can be used for training purposes,for example : 1. Table top games such as chess, monopoly, ludo, etc [5]. 2. Digital games such as sokoban, Sid Meier's Civilization series, The Sims series, etc.

2. Literature review

2.1. Smart city concept

Smart city researches have been going for years [7], some researches show that the city technology isn't the only deciding factor. Smart city is not limited to the city technology but also involves other aspects including its citizens [3,4,8–10].

A collaboration between the city and the people is necesarry to accomplish a smart city governance [10]. As the citizen also participate in the creation of smart city, it would also requires the people to receive the necessary level of