Chapter 15
IoMT and the Urban Tapestry: Weaving Healthcare Into Smart City Frameworks

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ABSTRACT

The incorporation of the internet of medical things (IoMT) into the urban tapestry inside smart city frameworks holds the potential to bring about a significant change in the way healthcare services are provided. This study utilizes a variety of research methodologies, such as surveys, interviews, data analytics, and existing datasets, to collect insights from healthcare professionals, city planners, and consumers. The results demonstrate the significant capacity of IoMT to improve preventive healthcare, optimize resource allocation, and promote innovative healthcare models. Privacy and teamwork are identified as crucial factors. The integration of IoMT into urban infrastructure offers a strategic plan for developing smart cities that are not only more interconnected, but also promote better health and resilience.

INTRODUCTION

The integration of the Internet of Medical Things (IoMT) into smart city frameworks is a significant convergence that has the potential to significantly impact the healthcare system in metropolitan areas. The integration of the Internet of Medical Things (IoMT) and smart cities brings about a fundamental transition in an era that is characterized by continual technological growth (Awotunde et al., 2022). This shift, in which urban living is closely linked with sophisticated healthcare solutions, is brought about by intelligent cities. Within the scope of this introduction, we will investigate the fundamental concepts that make it possible to incorporate IoMT (the Internet of Medical Things) alongside smart cities. The framework for an investigation of the complex relationships and outcomes that occur from their combination is established by this statement. Within the framework of smart cities, the purpose of this project is to examine the obstacles, benefits, and outcomes associated with introducing healthcare into urban settings through the utilization of the Internet of Medical Things (IoMT). The complicated

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issues of urbanization, healthcare, and the advancement of digital technology are addressed in this work (Abbas et al., 2023).

Smart cities have become a symbol of urban growth, symbolizing the potential of technology-driven solutions to improve the welfare of citizens and maximize resource usage as presented in Figure 1 below:

Smart cities have emerged as a result of the emergence of autonomous vehicles. In order to address urban difficulties in areas such as transportation, energy, and public services, these cities have implemented a system of sensors that are interconnected with one another, apply data analysis, and utilize cutting-edge technology. Recognition of the critical role that health plays in the general well-being of urban residents is made possible by the incorporation of healthcare into the Smart City model. In doing so, it represents a shift from the solo approach to healthcare, which transcends the limitations of conventional medical settings in order to embrace a paradigm that is more comprehensive and integrated (Ahmad et al., 2020). This integration is centered on the IoMT, which is a subset of the Internet of Things (Io T) that is specifically built for healthcare needs. The IoMT is the main point of this integration as depicted in Figure 2 below:

Wearable health monitors, intelligent medical equipment, and remote patient monitoring systems are all examples of the types of networked devices that fall under the umbrella of the IoMT area (Dwivedi et al., 2022). By gathering, transmitting, and analyzing health information in real time, these gadgets

Figure 1. Smart cities serve as symbols of urban growth