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博士学位論文審査結果要旨

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研究科、専攻名 バイオ・情報メディア研究科 コンピュータサイエンス専攻

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論文題目 Sustainable Smart City Design in KSA
based on a Nationwide Survey of Peoples' Awareness
from a Waste Management Perspective

審査結果の要旨

This doctoral thesis titled “Sustainable Smart City Design in KSA (Kingdom of Saudi Arabia) based on a Nationwide Survey of Peoples’ Awareness from a Waste Management Perspective” provides a nationwide survey of the waste problems in KSA and proposes the problems and feasible solutions to waste management to realize a new-era smart city in KSA. The thesis consists of 6 chapters as follows:

In Chapter 1 Introduction, the importance of waste management is described from the historical viewpoint. And solutions and methods for the waste problems are also clearly described to set research targets.

In Chapter 2 Related works, previous works in many countries related to waste management are described by showing political actions and facts in some countries to realize a sustainable society. And technologies applicable to implementing a smart city are also mentioned, e.g., IoT, AI, etc.

In Chapter 3 Survey and Research on Waste Management problem in KSA, the current state of waste management in KSA is described and discussed in detail, focusing on city building, i.e., urbanizing in KSA. Especially, the waste into Biodiesel assessment in KSA is adopted as an example, and then research questions are mentioned as a result of the survey and its discussion.

In Chapter 4 New-Era Smart City, based on the discussions in previous Chapters, a new way of waste management is discussed and a new plan for a smart city in KSA is proposed aiming at “Vision 2030” which is the Saudi Arabian government’s big project.

In Chapter 5 Discussion, based on the proposal in Chapter 4, evolution criteria are proposed, i.e., Cost of implementation, Time required for implementation, and Time-and-resource saving. And the results of the survey in Chapter 3 are in some

detail shown as status quo facts in KSA.

In Chapter 6 Conclusion, the summary of this thesis is described with some comments, and also new challenges suggested by this thesis are listed as 6 items.

In summary, this thesis contributes to realizing a smart city, i.e., a sustainable world, so that all people in the world can lead a sustainable life safely, especially by focusing on the case of KSA. As mentioned above, this thesis proposes invaluable insights into implementing a smart city based on the discussion of the nationwide survey. From this point of view, this thesis is unanimously judged to be entitled to be a doctoral thesis.

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