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**基於物聯網技術運用於智慧停車  
輔助系統之研究**

**Intelligent Parking Assist System based  
on Internet of Things Technologies**

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of Things Technologies

by

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## Abstract

In recent years, there has been a rapid development of technologies devising solutions for intelligent transportation systems, including intelligent parking assist systems. However, previous systems revealed several weaknesses, such as models which are not scalable, do not provide a full range of parking services to users, do not effectively manage parking resources, and have high latency in real-time parking services. To overcome these problems, this thesis examines previous research and proposes a new model for intelligent parking assist systems. We also introduce novel algorithms that increase the efficiency of the proposed system based on Internet of Things (IoT) technologies. Our system can help users to automatically find an optimal parking space at the least cost, based on new performance metrics. In addition, this thesis also proposes an intelligent parking assist system with a full range of end-to-end support services including: finding a suitable parking space based on the user's profile, outside guidance service, enter car park service, and indoor guidance service. Our system has been simulated and successfully implemented in the real world. The simulation results show that our system helps to improve the probability of successful parking and minimizes user waiting time.

**Keywords:** Smart parking system, Internet of Things technologies, performance metrics.

## Table of Contents

<b>Acknowledgements</b> .....	<b>i</b>
<b>Abstract</b> .....	<b>ii</b>
<b>Table of Contents</b> .....	<b>iii</b>
<b>List of Figures</b> .....	<b>v</b>
<b>List of Tables</b> .....	<b>vii</b>
<b>Chapter 1 Introduction to the Development of Intelligent Parking Systems</b> ....	<b>1</b>
1.1 Automated parking system.....	1
1.2 Intelligent parking assist system .....	3
1.3 Classification of intelligent parking assist system .....	5
1.4 Shortfalls of current Parking Systems .....	6
<b>Chapter 2 Architecture for Intelligent Parking Assist Systems based on Internet of Things Technologies</b> .....	<b>9</b>
2.1 Internet of Things technologies.....	9
2.2 Structure of an IPAS System based on IoT technologies.....	11
2.2.1 Local Parking Unit.....	11
2.2.2 Database Server .....	13
2.2.3 Software Client .....	15
2.3 IoT Hardware for IPAS Systems.....	16
2.3.1 Sensors.....	16
2.3.2 Arduino, Raspberry Pi Control Units .....	18
2.4 Protocol stack for IPAS systems .....	19
2.5 Propose the IPAS network based on IoT technologies .....	21
2.5.1 Parking Network .....	22
2.5.2 Construct the neighbor table of nodes .....	25
<b>Chapter 3 Mathematical Models for IPAS Systems</b> .....	<b>28</b>
3.1 Linked-Cost function estimation .....	28

3.2 Total Parking Cost Estimation.....	31
3.3 Parking Queue Models .....	33
<b>Chapter 4 Smart Services System Over Parking Networks .....</b>	<b>35</b>
4.1 Introduction .....	35
4.2 System Framework.....	36
4.3 Parking Services .....	38
4.3.1 Searching Service and Booking Service.....	38
4.3.2 Tracking service .....	40
4.3.3 Guidance service.....	41
4.3.4 Locking Service and Warning Service .....	42
4.4. Implementation.....	43
<b>Chapter 5 Enhance the Performance of Wireless Communication in Intelligent Parking System .....</b>	<b>47</b>
5.1 Indoor guidance using Ultra-wideband signals .....	47
5.2 Improve the quality of data transmission in IPAS system using a look up table structure.....	51
5.3 An adaptive solution for data transmission between local IoT network and server system using MQTT protocol .....	56
<b>Chapter 6 Evaluate the Performance of Intelligent Parking System.....</b>	<b>60</b>
6.1 Arena simulation tool .....	60
6.2 Scenarios setup.....	61
6.3 Evaluate the performance of IPAS system.....	63
6.3.1 Without consideration of parking fee .....	63
6.3.2 With consideration of parking fee .....	67
<b>Chapter 7 Conclusion .....</b>	<b>69</b>
7.1 Summary .....	69
7.2 Perspectives.....	69
7.3. The future of IPAS system .....	70
<b>References .....</b>	<b>71</b>

## List of Figures

Figure 1. 1. An automated parking system .....	2
Figure 1. 2. The basic configuration of an IPAS system .....	5
Figure 2. 1. The basic structure of an IPAS system based on Internet of Things technologies .....	11
Figure 2. 2. The role of the control unit in an IPAS system .....	12
Figure 2. 3. The use of ultrasonic sensor to detect the presence of the car at the parking space.....	13
Figure 2. 4. Propose to use Fog Computing in building intelligent parking assist system	14
Figure 2. 5. The interface of an IPAS system running on iOS platform.....	16
Figure 2. 6. Andruino/Raspberry Pi module used as control unit in Intelligent Parking Assist System .....	19
Figure 2. 7. Stack of protocols for Intelligent Parking Assist System .....	21
Figure 2. 8. Infrastructure/Backbone of the CPN architecture .....	22
Figure 2. 9. Car park network deployment for car parking system .....	23
Figure 2. 10. Parking network.....	24
Figure 2. 11. Simple neighbour tables .....	25
Figure 2. 12. Neighbour tables sorted by descending values of $F(\alpha, \beta, \gamma)$ .....	26
Figure 2. 13. A searching for a parking space based on the cost function.....	27
Figure 3. 1. The service queue .....	33
Figure 4. 1. System framework for IPAS services.....	37
Figure 4. 2. Illustrate the Searching/Booking Service .....	39
Figure 4. 3. Illustrate the Tracking service .....	40
Figure 4. 4. Illustrate the guidance services: (a) Outside guidance, (b) Entering car park guidance, (c) Indoor guidance.....	42
Figure 4. 5. Illustrate the Car Locking and Warning Service .....	43



Figure 4. 6. Procedures reserved parking spot .....	44
Figure 4. 7. Implementation of outside car park navigation system.....	45
Figure 4. 8. Implementation of inside carpark navigation system .....	46
Figure 5. 1. Enhance the accuracy of indoor navigation method for intelligent parking system using UWB signals .....	48
Figure 5. 2. Estimate the TOF between vehicle's tag and anchor .....	49
Figure 5. 3. Determine the user's position in the parking system.....	50
Figure 5. 4. Efficiency comparison between proposed method and other related works .	51
Figure 5. 5. Wireless communications in a local parking lot.....	52
Figure 5. 6. Apply the Lookup table structure to minimize the overhead of data transmission in IPAS system .....	54
Figure 5. 7. Comparison of Recovery Overhead of different RS codes: (a) Communication distance changes; (b) BER changes (with $k = 223$ bytes).....	55
Figure 5. 8. Comparison of average recovery overhead of proposed Adaptive Lookup-Table method, AMFEC [57], and Ghaida [58] with number of data transmissions $t = 6$ .	56
Figure 5. 9. A new architecture for real-time data transmission in IPAS system using MQTT protocol.....	57
Figure 5. 10. Comparison between the adaptive network and normal network for changes in queue length and number of sensor nodes: (a) end-to-end delay; (b) packet drop rate	59
Figure 6. 1. An installation setup to simulate IPAS systems using Arena software.....	61
Figure 6. 2. A 5-node network .....	62
Figure 6. 3. Average waiting time in a normal network vs. the proposed network.....	64
Figure 6. 4. Average total time in normal network vs. the proposed network.....	65
Figure 6. 5. Average waiting time vs. parking fee.....	68

## List of Tables

Table 2. 1. Comparison between Cloud Computing and Fog Computing for IPAS system .....	15
Table 2. 2. Comparison of protocols used in IPAS system .....	20
Table 3. 1. Table of cost function .....	30
Table 4. 1. Reference information for each user.....	45
Table 6. 1. Simulation Parameters .....	62
Table 6. 2. Average waiting time in case of POIS(20 minute).....	65
Table 6. 3. Average waiting time in case of POIS(15 minute).....	66
Table 6. 4. Average total time in case of POIS(20 minute).....	66
Table 6. 5. Average total time in case of POIS(15 minute).....	67