IOT-BASED PARKING SYSTEM DESIGN USING ULTRASONIC SENSORS AT MUHAMMADIYAH UNIVERSITY OF EAST KALIMANTAN

THESIS

Submitted in partial fulfillment of the requirements for achieving a Bachelor of Computer Science

SUBMITTED BY :

TANWIRUL

1911102441159

INFORMATICS ENGINEERING STUDY PROGRAM

FACULTY OF SCIENCE AND TECHNOLOGY

MUHAMMADIYAH UNIVERSITY OF EAST KALIMANTAN

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VALIDITY SHEET

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Genuinely declare that this thesis is truly my own work, not a takeover of the writings or thoughts of other people which I acknowledge as my own writings or thoughts. If in the future it is proven to be a duplicate, imitation, plagiarism, or made by someone else in whole or in large part, then this thesis and the title obtained are therefore null and void.

Samarinda June 25, 2023

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NIM. 1911102441159

THESIS PRESENTATION PAGE

"I dedicate this thesis to those who often ask: When is the final trial?

Samarinda July 17 2023

Tanwirul

LIFE MOTTO

"And only to your Lord should you hope." **– QS Al-Insyirah:8**

There is a small family that is waiting for a successful child in a city of people- **Family**

"Good or bad supervisor, it's not something to think about, just accept it as it is because every human being is unique."

-**My Self**

FOREWORD

Assalamu'alaikum Warahmatullahi Wabarakatuh.

Praise and gratitude the author goes to God Almighty, who has bestowed His grace, taufik, and guidance.

The thesis entitled "Designing an IoT-Based Parking System Using Ultrasonic Sensors at Muhammadiyah University, East Kalimantan, Samarinda City" was submitted as one of the requirements for students to be able to complete the relevant final project at Muhammadiyah University, East Kalimantan.

I realize that in completing this thesis, I have received assistance from various parties, both directly and indirectly, although there are still many shortcomings. Therefore, on this occasion the author would like to thank:

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Wassalamu'alaikum Warahmatullahi Wabarakatuh.

Samarinda, June 25 2023

Tanwirul

ABSTRACT

Parking space is one of the important needs for students today, but problems arise when it is difficult to get a parking space. This problem occurs when students or lecturers do not know information about the state of a parking lot. With the Internet of Things technology, these problems can be reduced. This microcontroller sensorbased parking system is a system that functions as a guide during the process 4-wheeled vehicle. The type of sensor to be used is the sensor system and the output of the detection uses a speaker. then this system can be applied not only at the Muhammadiyah University of East Kalimantan, but for the whole.

In this research, this thesis discusses the design and building of a sensor-based sensor system in the Muhammadiyah University parking lot, East Kalimantan. From the results of this study, this sensor- and microcontroller-based parking system can make it easier for parking attendants to park their vehicles and it can be concluded that the sensor has an error distance or average distance that is obtained after testing as 18 times it produces 10 CM.

Keywords: Parkir, Arduino, Light, Sound, IoT

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