UNIVERSITI TEKNIKAL MALAYSIA MELAKA

HOME WATER MONITORING SYSTEM

This report is submitted in accordance with the requirement of the Universiti Teknikal Malaysia Melaka (UTeM) for the Bachelor of Electrical Engineering Technology (Telecommunication) with Honours.

by

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2019

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BORANG PENGESAHAN STATUS LAPORAN PROJEK SARJANA MUDA

Tajuk: HOME WATER MONITORING SYSTEM

Sesi Pengajian: 2019

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APPROVAL

This report is submitted to the Faculty of Electrical and Electronic Engineering Technology of Universiti Teknikal Malaysia Melaka (UTeM) as a partial fulfilment of the requirements for the degree of Bachelor of Electronic Engineering Technology (Telecommunication) with Honours. The member of the supervisory is as follow:

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ABSTRAK

Projek ini adalah tentang pembangunan Sistem Pemantauan Air di Rumah dengan menggunakan system 'Internet of Things (IoT)'. Project ini mampu memantau aliran air yang melalui sensor pengaliran air, dapat juga memantau nilai pH air menggunkan sensor pH air dan boleh mengesan kualiti air yang mengukur tahap turbiditi air tersebut tanpa wayar yang melaluinya dan memaparkannya pada aplikasi Blynk melalui komunikasi Wi-Fi. Tujuan utama bagi projek ini dibangunkan adalah untuk mengurangkan pekerjaan yang manual dan memajukan lagi teknologi pada era terkini ini. Selain itu, dengan menghubungkan atau menyatukan sistem Wi-Fi di dalam projek ini, ia juga dapat meningkatkan pemindahan data. Seperti sedia maklum, kelajuan data pemindahan oleh Wi-Fi adalah lebih tinggi berbanding komunikasi tanpa wayar yang lain. Walaubagaimanapun, semakin tinggi perlindungan keselamatan, Sistem Pemantuan Air di Rumah boleh di akses atau di pantau secara terus oleh pengguna hanya menggunakan telefon pintar mereka.

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ABSTRACT

This project is about the development of Home Water Monitoring System that based on Wi-Fi and Internet of Things (IoT). This project could monitor the water that flow through the water flow sensor, monitor the pH value of water by using the pH water sensor and also can detects the quality of water by measuring the levels of turbidity that wirelessly through the Blynk Apps thru the Wi-Fi communication. The main function of developing for this project is to decrease the worker that work manually and decrease the company cost by hiring the worker. Moreover, with the arrangement of Wi-Fi system with this project, it will growth the data rate transfer. As we known that the speed of data rate are transfer by Wi-Fi was greater than the other wireless communication. Besides that, with the better protection of the security, this system will be able to access or monitor it directly by the user's smartphone.

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DEDICATION

Special dedication to my beloved parents,

EN. MAHAT BIN MOHAMMAD
PN. JAMILAH BINTI JAMARI

My family,

(Muhammad Fauzee Bin Mahat, Muhammad Fikri Hakim Bin Mahat, Muhammad Faris Imran Bin Mahat, Nurfarah Batrisyia Binti Mahat)

My beautiful and kind supervisor,

PN NORLEZAH BINTI HASHIM

My beloved friends, classmates, housemates and coursemates

(Nur Alifah Binti Ahmad Termizi , Siti Hanum Fatehah Binti Bahar, Nur Ezzah Binti Wahab, Nur Sabrina Binti A Rahim, Nur Farah Afiqah Binti Mohd Yusuf, Nezyla Noorbaizatul Nafisah Binti Abdullah, Nur Qamareena Binti Abdul Halim, Nur Alia Liana Binti Daud, Shezlin Annzi Tan, Nur Farahin Binti Adhar, Joanna Anak Jendia, Awatif Binti Ismail, Nur Aliah Binti Nasir, Ahmad Ikmal Bin Sumadi)

Thank you for all your love, care and support also believe in me.

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ACKNOWLEDGEMENTS

First and foremost, all praise and gratitude to Allah SWT for giving me strength to went through all difficulties and hardship to successfully finishing up my thesis. I wish to express my sincere appreciation to my beloved supervisor, Puan Norlezah Binti Hashim for valuable experience, encouragement, guidance, critics and friendship. Not forgotten to all the lecturers that had been taught me over these four years.

Next, I would like to express my appreciation to my beloved parents, Mahat Bin Mohammad and Jamilah Binti Jamari and also to all my family and friends for all their supports, motivation and pray from the initial of the project until the end of it. Last but not least, special thanks to my friends, my classmate and others that non-stop helping me and support me to complete this project.

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LIST OF SYMBOLS

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LIST OF ABREVIATIONS, SYMBOLS AND NOMENCLATURE

IoT	-	Internet of Things
Wi-Fi	-	Wireless Fidelity
WSN	-	Wireless Sensor Network
RFID	-	Radio Frequency Identification
WLAN	-	Wireless Local Area Network
P2P	-	Point to Point
AP	-	Access Point
D2D	-	Device to Device
LTE	-	Long Term Evolution
NFC	-	Near Field Communication
RF	-	Radio Frequency
GPS	-	Global Positioning System
LAN	-	Local Area Network
IEEE	-	Institute of Electrical and Electronic Engineering
P&G	-	Procter & Gamble
MEMS	-	Micro Electromechanical Systems
M2M	-	Machine to Machine
SCADA	-	Supervisory Control and Data Acquisition
PWM	-	Pulse Width Modulation
UART	-	Universal Asynchronous Receiver/Transmitter

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ICSP	-	In-Circuit Serial Programming
USB	-	Universal Serial Bus
GND	-	Ground
SRAM	-	Static Random Access Memory
EEPROM	-	Electrically Erasable Programmable Read-Only Memory
PCB	-	Printed Circuit Board
IC	-	Integrated Circuit
QoS	-	Quality of Service
API	-	Application Programming Interface
AC	-	Alternating Current
DC	-	Direct Current
KB	-	Kilo Byte
V	-	Voltage
mV	-	Mili Voltage
Vin	-	Input Voltage
KOhm	-	Kilo Ohm
mA	-	Mili Ampere
RX	-	Receiver
TX	-	Transmitter
TTL	-	Time To Live
SPI	-	Serial Peripheral interface
SS	-	Slave Select
SCK	-	Signal Clock

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SCL	-	System Control Language
MB	-	Mega Byte
MHz	-	Mega Hertz
LED	-	Light Emitting Diode
IP	-	Internet Protocol
PH	-	Potential Hydrogen
GPIO	-	General Purpose Input/Output 1

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