

UNIVERSITI TEKNOLOGI MARA



PetTrax (Pets Tracking System)

AISYAH DALIYAH BT MOHD TAHIR

**BACHELOR OF COMPUTER SCIENCE (Hons.) DATA
COMMUNICATION AND NETWORKING**

JULY 2021

ACKNOWLEDGEMENT

I would like to start by extending all my praises to Allah s.w.t the Almighty, for giving me a chance to be able to develop and propose this final year project. I am beyond blessed to be able to complete the proposal of the project with full perseverance, strength, and dedication.

From the bottom of my heart, I would like to sincerely thank my supervisor Dr. Nor Azimah Khalid for giving me her guidance, time and is always there to help whenever I was stuck during the development of the project. She has been very helpful and encouraging which has really driven me towards the completion of this project.

I would also like to thank my CSP650 lecturer, Dr. Zolidah bt Kasiran for consistently sharing her knowledge with us and always ready to lend a helping hand when needed.

Lastly, I am also extremely grateful and appreciate all the support and help that I have gotten from my family and friends. All their words of encouragement and endless support have truly been helpful in completing the project.

ABSTRACT

Missing pet cases have always been taken lightly by the society as they feel like pet loss is not something serious. However, pet loss can lead to many side effects in terms of health such as depression and anxiety. Nowadays, there are many reported missing pet cases in Malaysia. Many people are often drowned in workload or chores which makes them neglect their pet which increases the risks of pets running away or getting lost. Furthermore, the number of mental health cases are increasing daily in Malaysia as the citizens are affected mentally and emotionally due to the pandemic. Therefore, the PetTrax (Pets Tracking System) will surely ease the burden of pet owners who find it difficult to keep track on their pet during these times. This project is developed using Arduino and contains an Android mobile application. The PetTrax (Pets Tracking System) has been successfully configured using Arduino, Bluetooth module, voice module, raindrop sensor module, battery, and GPS module while the Android mobile application has been successfully configured using MIT App Inventor. Both hardware and Android mobile application are fully functioning as planned. The PetTrax was able to detect the pet's current location via Bluetooth. Pet owners will also receive a notification when the pet is getting wet to ensure that it does not stay in the rain for too long. Furthermore, pet owners can also call their pet with their pre-recorded voice to call their pet back home. Next, the functionality and accuracy test has also been conducted to measure both of the aspects and has proven to be successful. Based on a survey that was conducted, the results obtained were good in terms of user friendliness which was further proven with a technology acceptance model. However, there are a few limitations to this project as this project is just a prototype. There are a few recommendations on aspects which can be further improved in the future.

Keywords: Arduino, Pet Tracking System, IoT, Bluetooth, Raindrop Sensor, GPS

TABLE OF CONTENTS

| CONTENT | PAGE |
|--|-------------|
| SUPERVISOR APPROVAL | ii |
| STUDENT DECLARATION | iii |
| ACKNOWLEDGEMENT | iv |
| ABSTRACT | v |
| TABLE OF CONTENTS | vi |
| LIST OF FIGURES | ix |
| LIST OF TABLES | x |
| CHAPTER ONE: INTRODUCTION | |
| 1.1 Background of Study | 1 |
| 1.2 Problem Statement | 3 |
| 1.3 Objectives | 5 |
| 1.4 Scope and Limitation | 5 |
| 1.5 Project Significance | 5 |
| 1.6 Chapter Summary | 6 |
| CHAPTER TWO: LITERATURE REVIEW | |
| 2.1 Internet of Things (IoT) | 7 |
| 2.2 Missing Pets Cases | 7 |
| 2.3 GPS Tracking System | 8 |
| 2.4 Related Works | 10 |
| 2.4.1 GPS Based Animal Tracking System | 10 |

CHAPTER 1

INTRODUCTION

In this chapter, a brief explanation regarding projects background and other related component for detailing project proposed will be explain.

1.1 Background of Study

In this advanced technological era, new technologies and products are constantly evolving and getting better. According to Yahya Salameh Khraisat and Mohammad Al-Khateeb (2011), since the introduction of GPS Navigation systems in the marketplace, consumers and businesses have been coming up with innovative ways to use the technology in their everyday life. GPS Navigation and Tracking systems keep us from getting lost when we are in strange locations, they monitor children when they are away from home, keep track of business vehicles and can even let us know where a philandering partner is around the clock. This technology has proven very useful to us especially in this modern era where everyone is busy trying to make ends meet. There are many uses of GPS trackers; however, we will only focus on pet tracking system for this project.

As we all know, there are many rising cases of missing pets in Malaysia. According to Emily Weiss, Margaret Slater, and Linda Lord (2012) from American Society for the Prevention of Cruelty to Animals (ASPCA), fourteen percent of dogs and 15% of cats were lost in the past five years. Most of the pet owners are busy or working during the day and cannot always keep an eye on their pets. Most of the pets need to be given attention and care consistently. Some pets that have an adventurous side tend to roam around the neighbourhood whenever they feel like it. However, they might not remember the way back home or might get lost somewhere. This may cause the pet owners to think