KEMENTERIAN PENGAJIAN TINGGI

POLITEKNIK MELAKA

WIRELESS REMOTE INFRARED FOR BIRD DETERRENCE

NAMA	NO PENDAFTARAN
MUHAMAD MU'AZ NAQIUDDIN BIN VIRA	11DKM22F1034
SITI HAJJAR BINTI SHAHRIN	11DKM22F1033
MUHAMMAD AMIRUL NAIM BIN AZMI	11DKM22F1038

Laporan ini dikemukakan kepada Jabatan Kejuruteraan Mekanikal sebagai memenuhi sebahagian syarat penganugerahan Diploma Kejuruteraan Mekanikal

JABATAN KEJURUTERAAN MEKANIKAL

SESI I 2024/2025

AKUAN KEASLIAN DAN HAK MILIK

TAJUK: WIRELESS REMOTE INFRARED FOR BIRD DETERRENCE

SESI: SESI II 2023/2024

1. Kami, 1. MUHAMAD MU'AZ NAQIUDDIN BIN VIRA (11DKM22F1034)
   2. MUHAMMAD AMIRUL NAIM BIN AZMI (11DKM22F1038)
   3. SITI HAJJAR BINTI SHAHRIN (11DKM22F1033)

adalah pelajar tahun akhir **Diploma Kejuruteraan Mekanikal, Politeknik Melaka** yang beralamat di **2, Jalan PPM 10, Plaza Pandan Malim, 75250 Melaka.**

2. Kami mengakui bahawa 'Projek tersebut di atas' dan harta intelek yang ada di dalamnya adalah hasil karya / reka cipta asli kami tanpa mengambil atau meniru mana-mana harta intelek daripada pihak-pihak lain.
3. Kami bersetuju melepaskan pemilikan harta intelek 'WIRELESS REMOTE INFRARED FOR BIRD DETERRENCE' kepada 'Politeknik Melaka' bagi memenuhi keperluan untuk penganugerahan **Diploma Kejuruteraan Mekanikal** kepada kami.

Diperbuat dan dengan sebenar-benarnya diakui oleh
yang tersebut;

a. MUHAMAD MU'AZ NAQIUDDIN BIN VIRA ……
(No. Kad Pengenalan [redacted])

b. MUHAMMAD AMIRUL NAIM BIN AZMI …….
(No. Kad Pengenalan: [redacted])

c. SITI HAJJAR BINTI SHAHRIN ……..
(No. Kad Pengenala[redacted]4)

Di hadapan saya,

EN MUHAMMAD HAFIZ BIN KAMARUDIN

.....
sebagai penyelia projek pada tarikh:

ABSTRACT

Various types of birds, including pigeons and swallows, are commonly found flying around Melaka Polytechnic, particularly around the Mechanical Engineering Department building. These birds have been observed nesting in nearly every corner of the structure. During teaching sessions, especially in the evening, the birds often create loud, disruptive noises in the lecture halls, which distract both lecturers and students. Additionally, bird droppings are frequently scattered along the sidewalks, creating a slipping hazard for those walking through the building. Bird droppings are not only unsanitary and unpleasant but can also pose serious health risks, as they can spread diseases such as asthma, histoplasmosis, cryptococcosis, and bird flu.

To address these issues, a "Wireless Remote Infrared Bird Deterrence" system powered by a 15V battery has been designed. This device aims to repel the birds, reducing both noise disturbances and the spread of droppings. By deterring the birds, the system helps keep the sidewalks clean, preventing employees, lecturers, and students from stepping on bird droppings. This not only promotes a cleaner environment but also improves the overall learning atmosphere by minimizing distractions. Furthermore, it eases the workload of cleaners, as bird droppings that are left too long can become difficult to remove.

ACKNOWLEDGEMENTS

Thanks to God and blessings on our great master, Prophet Muhammad SAW, we were able to successfully complete the final project within the stipulated period. The full report of this final project is also part of the award conditions for the Mechanical Engineering Diploma, session I 2024/2025.

We would like to express our gratitude to all parties directly or indirectly involved, especially to our supervisor Mr Muhammad Hafiz Bin Kamarudin who has given us a lot of guidance, advice, encouragement and constructive criticism so that we have successfully completed this final project report. Not forgetting friends and family members who helped a lot in terms of views and finances in completing this final project assignment. It is our hope that this report can be used as an example and a guide for the parties concerned in the future.

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Malaysia can be found in the Northern Hemisphere, which is the part of the Equator further north. The South China Sea is divided into two distinct areas (531.1 square kilometers). The sloping coastline, lush forests and rolling hills in this location are almost comparable. Some areas in Malaysia, particularly in Peninsular Malaysia and northern Sabah, have a tropical monsoon climate, which is equatorial in nature. Kalimantan, Indonesia is bordered by an area of 124,449km2. Between latitudes 1 and 7 and longitudes 100 and 119, Malaysia lies near the equator between the Indian Ocean and the South China Sea and is affected by varying ocean currents and wind patterns. There are two distinct monsoon seasons in this area: one in the southwest and one in the northeast. Almost all of Malaysia experiences temperatures between 21°C and 32°C every day. Humidity levels are expected to be high.

Figure 1.1

Malaysia's wind patterns are often variable, despite the fact that they are usually gentle and change direction. There are four distinct monsoon seasons, mainly the southwest monsoon, the northeast monsoon and two shorter transitional monsoon seasons, tropical rainforests cover most of the land area of Peninsular Malaysia. In Peninsular Malaysia, lowland forests have a layered structure. Renjong trees, the main

canopy, understory plants, and ground level plants make up the various levels. Tanjong layer trees can grow up to a height of 60 to 70 meters. Dipterocarpaceae and Leguminosae are two of the most common tree families in this area. There are several groups of commercial timber trees that share the Dipterocarpaceae family. These include balau (cengal), kapur (keruing), meranti, merawan, mersawa, and seraya. Plants of the kedondong family, Kandis, directoran, and chelat, which have a height between 20 meters and 40 meters, form the primary canopy layer. Small plants and palm trees grow under cover at ground level. Saplings, small palm trees, bushes and plants can be found on the forest floor. The term "fauna" can be applied to various categories of creatures, including reptiles, mammals, birds and molluscs. Malaysia is a country of megadiversity, with the rainforest having the greatest diversity of animals. There are about 210 species of mammals, 250 species of reptiles, and 150 species of frogs found in Malaysia. Examples of reptiles found in Malaysia include green sea turtles, pythons, water crocodiles, and turtles. Mammals include rhinoceroses, buffaloes, elephants, tigers, and jungle men. 620 species of birds are found in the Peninsula alone.

Figure 1.2

Birds are winged, bipedal, warm-blooded, egg-laying vertebrates in the large and diverse class Aves found throughout the world, from deserts to the North Pole, as well as the Amazon rainforest and Greenland. There are more than 8,600 species of birds that have been identified divided into 27 orders. In addition, there are many subspecies which if counted together with the known species contain more than 3,200 types. Birds are homoiothermic, warm-blooded, with a constant temperature of 40- 44 °C. Bird bones are light and hollow in most places to reduce their density and weight. All birds have beaks, the only difference is the shape and size of their beaks. Most birds have feathers except for a few that do not. Theropod-type birds are believed to have evolved from reptiles, such as dinosaurs, which lived about 180 million years ago. Birds change and lose their teeth and other reptilian characteristics, while undergoing an evolutionary process that takes millions of years. At the same time, fringe feathers grow on its tail and wings.

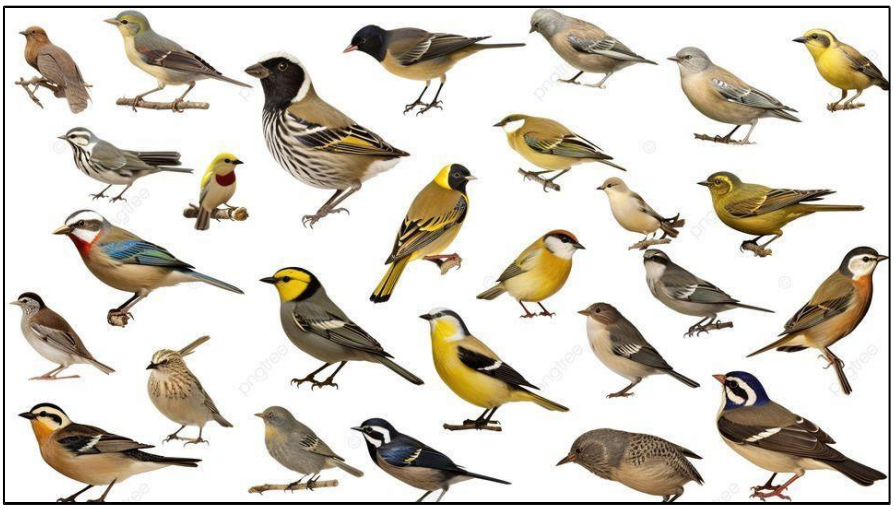

Figure 1.3

Although most birds are able to fly, there are some species that cannot, such as ostriches, rhea, emu, kiwi and penguins. All birds have wings even those that cannot fly, however small and useless they may be. Birds can lay eggs. Usually the female will incubate the eggs, sometimes both partners will take turns, and in some bird species only the male will incubate the eggs. There are also species of birds that lay eggs in the nests of other birds to be incubated by the adoptive bird family. There are

many different categories of birds in this world. In this world, there are many classes of birds such as :- Struthioniformes, Tinamiformes, Anseriformes, Galliformes, Sphenisciformes, Phoenicopteriformes, Accipitriformes, Falconiformes, Columbiformes, Psittaciformes and more.

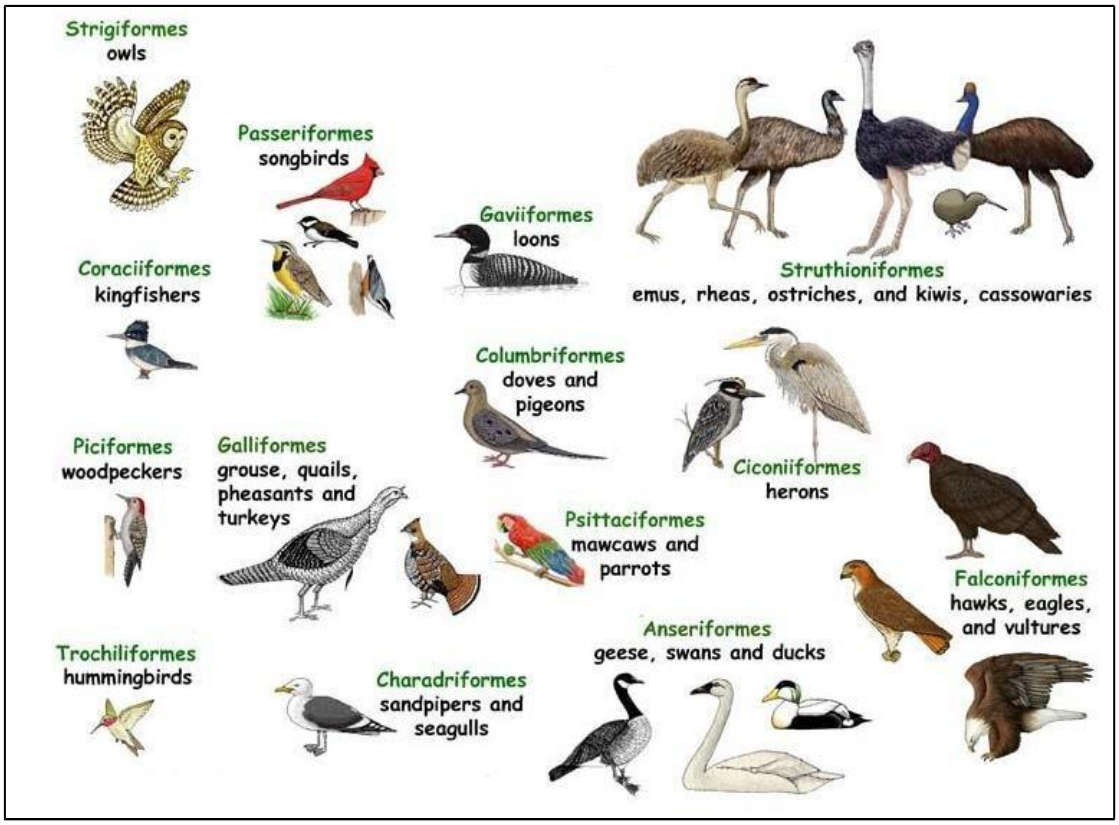

Figure 1.4

1.2 **OBJECTIVE**

i. To study birds deterrence model in the market.
ii. To design birds deterrence model.
iii. To evaluate the effectiveness of the birds deterrence model.

1.3 **SCOPE PROJECT**

1. Using wireless remote control.
2. Able to repel sparrows, crows and pigeons.
3. This deterrence using sirens to make the birds go away.
4. Using battery 15 Volt.
5. Using led light with 9 Watt.
6. Portable with 250 gram.

1.4 **PROBLEM STATEMENT**

The birds have made a nest in the Polytechnic Building, where they can be heard making loud sounds and where they also distract students when they are trying to concentrate on their studies. Pigeons, sparrows, and swallows are some of the birds that may be seen at the Polytechnic, especially in the JKM building. It was discovered that students and staff often walked on bird droppings that were scattered throughout the floor. Bird poop on the ground is an extremely unsanitary condition that poses a health risk and may even be hazardous. These bird droppings have the potential to induce a variety of ailments, including asthma, histoplasmosis, cryptococcosis, and the bird flu virus, amongst others. The reason for this is that birds like to perch in high places, such as Surau Ar-Raudhah. Floors will get unclean, and there will be an unpleasant stench as a result of things like this.

There are several examples of pictures where birds and bird droppings are around the JKM building area and Surau Ar-Raudhah.

1.5 **PROJECT SIGNIFICANT**

The "Wireless Remote Infrared For Bird Deterrence" project which works with the help of battery power 15V is aimed at overcoming the problem of bird disturbance and also bird droppings at Polytechnic Melaka, especially in the Surau Ar-Raudhah.

1. Saving time for cleaning workers to wash or mop floors because bird droppings are dry and difficult to wash.

2. It can prevent students, lecturers, and staff from being stepped on by unclean birds, causing the floor to be dirtier and the dirt to be spread all over the place.

3. Sounds and disturbances emitted by birds can be reduced.

4. Train staff or lecturers who are exposed to bird filth can be avoided.