

UNIVERSITI TEKNOLOGI MARA

**DESIGN AND FABRICATION OF
AUTOMATIC GEAR WINDOW**

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Dissertation submitted in partial fulfillment
of the requirements for the degree of
Diploma
(Mechanical Engineering)

College of Engineering

Feb 2023

ABSTRACT

As the world passed the Industry Revolution 3.0, IR3, the automation system is widely use today. Residential building, office, shop and small factory are more likely to have abundance of automation system inside such as automatic gate and door. Most of the automation system use a hydraulic system as it has high power output and availability in market. However, some automation window by hydraulic power is not space saving and costly including the maintenance of the hydraulic itself. This thesis presents an automatic gear window that can open and close the window automatically by switch and motor. It uses the rotational and linear motion concept as same as rack and pinion steering mechanism in a car. It will replace the hydraulic system that commonly use. The outcome of this project will overcome the main problems which is to reduce the manpower, prevent injury and operational time. In order to replace the hydraulic system, it brings more benefits such as operational cost, space saving, no fluids, low maintenance, and can be used for any type of window such as slide and swing window.

ACKNOWLEDGEMENT

Firstly, I wish to thank God for giving me the opportunity to embark on my diploma and for completing this long and challenging journey successfully. My gratitude and thanks go to my supervisor, Dr. Raja Muhammad Aslam Bin Raja Arif. After that, I would like to express my sincere gratitude to all those who have helped and supported me throughout this project. I get the invaluable contributions made by my colleagues, mentors, and friends. Next, I would like to extend my appreciation to my family for their unwavering support and encouragement and my supervisor for their guidance and support throughout my research. The support and assistance provided by the entire team during the development of this project. Then, I would like to thank all those who have provided feedback and constructive criticism throughout this process and the participants who took the time to participate in this study. Lastly, I would like to acknowledge the support and resources provided by the institution that made this research possible.

Finally, this dissertation is dedicated to my father and mother for the vision and determination to educate me. This piece of victory is dedicated to both of you. Alhamdulillah.

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CHAPTER ONE

INTRODUCTION

1.1 Background of Study

Most building constructed today put a window as an important thing in the design and sketching of the building. It plays a big role to complete the system in the building. The main and general purpose of a window is to supply a good ventilation through a building. It flows the air in and out of the building for people inside the building. Window is a natural ventilation system first created by ancient China in 7th BC. Windows are firstly made by only create a small designated square hole on the wall of the Great Wall of China by Dynasty Qin. Then, paper window is widely used by ancient China, Korea and Japan. Around 100 AD, the Romans were the first known to use glass as the material for window located in North France, Germany and England. The innovation and improvement of window spread across the world through time from the ancient design of window to new modern concept of window.

Modern window nowadays brings more benefit to the building. It is not specified only for good ventilation system. It provides natural light, prevent overheating inside the building and provide stability of the building itself by controlling the flow of air specifically for tall building. With the time pass through and the advance of technology become further, technology bring beneficial to users and help human to grow upon life easier. Autonomous technology is such a good example of the industry advancing which help the earth more efficient to live. Some home appliances which already exist have been in research and development for long period and window will be included.

1.2 Problem Statement

Firstly, Malaysia is a tropical country located near the equator line which a divider line of North and South Hemisphere. This country receives a huge annually rainfall average with mean annual precipitation of 3085.5 millimeters (mm). There are two monsoon season which is the Southwest Monsoon that occur from April to September and the Northeast Monsoon that occur from October to March. It has high probability to rain every day. Even though there