



اَوْنِيْتَرَسِيْتِي تِيْكْنُوْلُوْجِي مَارَا
UNIVERSITI
TEKNOLOGI
MARA

MULTIPURPOSE JACKET WITH THERMAL TECHNOLOGY

Faculty : Faculty of Applied Sciences
Program : Bachelor of Sciences (Hons) Food Science & Technology
Program Code : AS246
Course : Technology Entrepreneurship
Course Code : ENT600
Semester : 6
Group Name : AS2466A1/A2
Group Members :

| Student's Name | Student's Id | Group |
|------------------------------------|--------------|----------|
| Anis Fathiah Binti Fazer | 2022923557 | AS2466A1 |
| Nur Najihah Binti Mohd Sabri | 2022905451 | AS2466A1 |
| Izzah Amirah Binti Wahir | 2022755727 | AS2466A1 |
| Nur Elia Farhana Binti Suhaimi | 2022978343 | AS2466A1 |
| Elly Elyanna Binti Ramli | 2022958677 | AS2466A2 |
| Ummi Liyana Binti Mohd Zaid | 2022975059 | AS2466A2 |
| Raja Noor Shareena Binti Raja Fuad | 2022755649 | AS2466A2 |

Submitted to
Madam Mumtaz Binti Ahmad

Submission Date
15 December 2023

Table of Contents

| | | |
|--------------|--|-----------|
| 1.0 | <i>EXECUTIVE SUMMARY</i> | 1 |
| 2.0 | <i>INTRODUCTION</i> | 2 |
| 3.0 | <i>NEW PRODUCT DEVELOPMENT</i> | 6 |
| 3.1 | Definition | 6 |
| 3.2 | Classification of NPD | 6 |
| 3.3 | New Product Development Process | 10 |
| 3.3.1 | Research & Development | 10 |
| 3.3.2 | Product Design/Features | 14 |
| 3.3.3 | Concept Testing | 16 |
| 3.3.4 | 2D Build Prototype | 17 |
| 3.3.5 | Test Marketing | 19 |
| 3.3.6 | Customer Trend Canvas | 25 |
| 4.0 | <i>CONCLUSION</i> | 30 |
| 5.0 | <i>REFERENCES</i> | 34 |

1.0 EXECUTIVE SUMMARY

A multipurpose jacket with heating technology, tailored specifically for motorcyclists who rely on their bikes as their primary mode of transportation, is currently in development. This innovative product is geared towards a range of motorcycle riders, including those who work as Food Panda and Grab Food delivery riders. However, it also has a wider target audience, making it suitable for those living in high-altitude regions with cold temperatures and even flood victims. The jacket boasts an advanced heating element that can be activated with technology. Its Multi-Zone Heating application allows wearers to program their desired temperature easily. Additionally, incorporating smart fabric technology ensures that the jacket is a functional and fashionable outdoor garment that can monitor external temperature and weather conditions. Furthermore, this multipurpose jacket with heating technology aims to enhance the integration of technology in daily life, in line with the rapid development of technology around the globe. Moreover, it seeks to comfort those victims of natural disasters by providing warmth to its users. This product is expected to stand out in the market due to its unique features, which provide consumers with the comfort and convenience they need daily, thanks to its user-friendly design.

2.0 INTRODUCTION

As clothing technology evolves, incorporating heating pad technology into jacket design is a significant step forward. This revolutionary feature offers a new level of warmth and comfort in cold climates, providing a unique experience for individuals. It caters to the specific needs of various enthusiasts, from outdoor adventurers to motorcyclists. This innovative solution not only solves the age-old problem of staying warm in cold weather but also represents a landmark in the evolution of clothing technology. A jacket equipped with heating pad technology is far more than just a piece of outerwear. It represents a fusion of cutting-edge technology and meticulous design. These sophisticated garments incorporate intelligently placed heating components, often powered by sophisticated battery systems, to deliver customizable warmth to crucial parts of the body, including the chest, back, and arms. The outcome is a wearable solution that delivers unmatched ease and versatility in inclement weather.

The integration of heating pads into jackets has transcended the traditional definition of clothing, marking the advent of a new era where technology takes the lead in fashion. These jackets cater to individuals' diverse needs, seeking functionality and style, seamlessly blending practicality with aesthetic appeal. Whether trekking through the wilderness, cruising on a motorcycle, or simply navigating a cold cityscape, a jacket equipped with heating pad technology can be a versatile companion by delivering a personalized and efficient solution to staying warm. Jackets with heating pad technology go beyond just regulating temperature. They blend form and function seamlessly with careful design considerations that enhance performance and keep up with modern fashion trends. This makes it easy for individuals to showcase their style while enjoying the benefits of cutting-edge warming features.

In this new age of intelligent outerwear, the development of this jacket with heating pad technology demonstrates limitless opportunities to combine fashion and innovation. The integration of warmth with a simple button press indicates a significant shift in our perception and experience of comfort, making this jacket an appealing and essential addition to every wardrobe.

Problem Statement

As the popularity of motorcycle riding grows, riders are faced with ongoing challenges related to their comfort and safety, particularly in varying weather conditions. Although traditional motorcycle jackets provide protection, they often fall short regarding warmth during colder rides. This impacts the overall riding experience and poses potential risks to the rider's health and safety. As such, it's critical to develop a new generation of motorcycle jackets featuring integrated heating pad technology to address these critical issues:

a) Insufficient Cold Weather Protection

Even though numerous motorcycle jackets are available, many fail to provide sufficient warmth, particularly during chilly and cold weather conditions. This can result in several issues for riders, including discomfort, distraction, and even cold-related health problems. The insulation these jackets provide is often inadequate, preventing riders from maintaining their focus and enjoyment while on the road. Furthermore, the lack of warmth can lead to additional problems, such as numb fingers and impaired dexterity, which can compromise the rider's safety. The reduced body temperature can also impact the rider's ability to make quick decisions and react to unexpected situations, making them more vulnerable to accidents. In addition, the discomfort caused by inadequate warmth can make the riding experience unpleasant, discouraging riders from going on longer trips or enjoying the journey. Motorcycle jackets must provide the necessary insulation to keep riders warm and comfortable throughout their ride, ensuring they are focused, alert, and safe on the road.

b) Extended Riding Discomfort

Extended periods of riding in cold weather can challenge riders, leading to physical fatigue and reduced concentration. This is particularly true for those undertaking long journeys or dealing with unpredictable weather conditions. In such conditions, it is essential to have proper protection to ensure warmth and comfort. Advanced heating systems integrated into jackets can help mitigate the effects of cold weather, providing riders with the necessary warmth to maintain their focus and enhance safety. By reducing the risk of cold-related health issues, these heating solutions can make the riding experience more enjoyable and immersive.