



## **NPD TITLE**

**SMART JACKET**

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**Faculty** : **HEALTH SCIENCE**

**Program** : **ENVIRONMENTAL HEALTH AND SAFETY**

**Program Code** : **HS243**

**Course** : **TECHNOLOGY ENTREPRENEURSHIP**

**Course Code** : **(ENT600)**

**Semester** : **7**

**Company Name** : **Flexwarm**

**Group Members** :  
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**Submitted to**

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## **1.0 EXECUTIVE SUMMARY**

The business that we involve is in technopreneurship, entrepreneurs that are into the core businesses involving technology-based industries. We make use of technology to come out with new or innovative products through a process of commercialization. Our businesses are generally marked with high growth potential and high leverage of knowledge and intellectual property. Our Technopreneurs will be equipped with both technical and business skills. Our business will focus more it research and development (RnD) that will come out will new and fresh product. The concept of our product is Smart Jacket. The concepts that our team want to bring to the world is jacket that have multiple function all in one jacket. Our team has been researching a new technology based on thin-film techniques we call Flexwarm. In the last few years, we have made developed patented breakthroughs that have allowed us to embed smart sensors and a completely unique flexible heating layer that is both extremely thin (0.5 mm) and completely safe. Utilizing Flexwarm, we have created the Smart Jacket that will change everything about wearable technology! Flexwarm uses 2 integrated sensors to measure the temperature inside the jacket, and the temperature outside the jacket. Just set your perfect temperature from the iOS or Android App, and your jacket will automatically adjust the heating levels to maintain a constant internal temperature. Flexwarm is a smart jacket that adapts to you. Our Smart Jacket also has multiple function such as charging while in use, charger pocket, built in earphone cable, auto-connect favorites, auto-mute pocket, auto-music playing pocket, battery pocket, neck pillow, sleep shade, built-in gloves, and ventilation zipper. This is the jacket that you need to complete your trip to anywhere. So that is brief description about our business and our product concept.

## **2.0 INTRODUCTION**

Outerwear is the last critical barrier separating us from the outside but yet, jackets haven't evolved even with all the technological innovations and discoveries. Rather than looking at traditional methods such as layering or just different levels of heated wires, our team at Flexwarm was determined to create an intelligent line of clothing starting with the jacket with technology that adapts to you.

Our product, Smart Jacket will help make everyday life task more efficient with multiple function.

## **2. Methodology**

### **2.1 Data Collections**

Market research was done to estimate the cost of every part in the product thus calculating the overall cost of the final product. Also, suppliers were identified to compare the price and quality of the materials.

### **2.12 Target Market**

Customer classification is an important issue in the real world of marketing, that the more understanding the business has about its customer behaviour patterns, the greater the chance that more effective marketing strategies can be developed. The potential customers are chosen based on their needs and daily lifestyle. In line with our company product that was meant for home appliances suitable for both indoors and outdoors utilization, our targeted customers are basically college students and travellers also youth generation.

### **2.23 Market Size and Market Share**

Market Size and Market Share:

- Malaysia 2018 population = 34 million households
- Estimated employment rate = 14,788,900 total labor force (2016)  
(Statistic Department)
- Estimated of family monthly expenditure = RM4,033 (2016)  
(Household Income and Expenditure Statistics, Malaysia 2016)
- Target buyer

### **2.24 Limitations**

- should not always be washed using water

### **3.0 TECHNOLOGY DESCRIPTION**

#### **3.1 Smart Jacket:**

Smart jacket is a new transformation of clothing that is added in terms of technology. This smart jacket is complemented by some additional modern features that are not available to regular jackets. The jacket is also created from materials that are resistant to water, fire and friction if the user encounters unforeseen anxious moments such as accidents and fires.

Our team has been researching a new technology based on thin-film techniques we call Flexwarm. In the last few years, we have made developed patented breakthroughs that have allowed us to embed smart sensors and a completely unique flexible heating layer that is both extremely thin (0.5 mm) and completely safe. Utilizing Flexwarm, we have created the Smart Jacket that will change everything about wearable technology.

## **4.0 NEW PRODUCT DEVELOPMENT**

### **2.1 Classification of NPD**

This product is the improvements on existing products in the marketplace. This product also has new applications to existing products.

### **2.2 New Product Development Process**

#### **2.3 Research & Development**

- **Idea generation**

Several ideas from earlier products were being referenced in developing the early drafts for this product. There are many available products in the market including retractable drying rack and products based on traditional drying pole. Ideas also were generated based on the availability of the product on the market so it didn't become a redundant product.

- **Idea Screening**

Ideas are then screened for its practicability based on several criteria. Among the concerns noted from the respondents from our survey are its multiple function, durability, usability, and safety as well as the price.

- **Market Survey**

The market for this product is expected to be vast especially in urban areas with. The target market for this product is for the college student as well as travellers and youth generation. The respondents were asked what they need in their everyday chores and then what they expect to be implemented in this product.

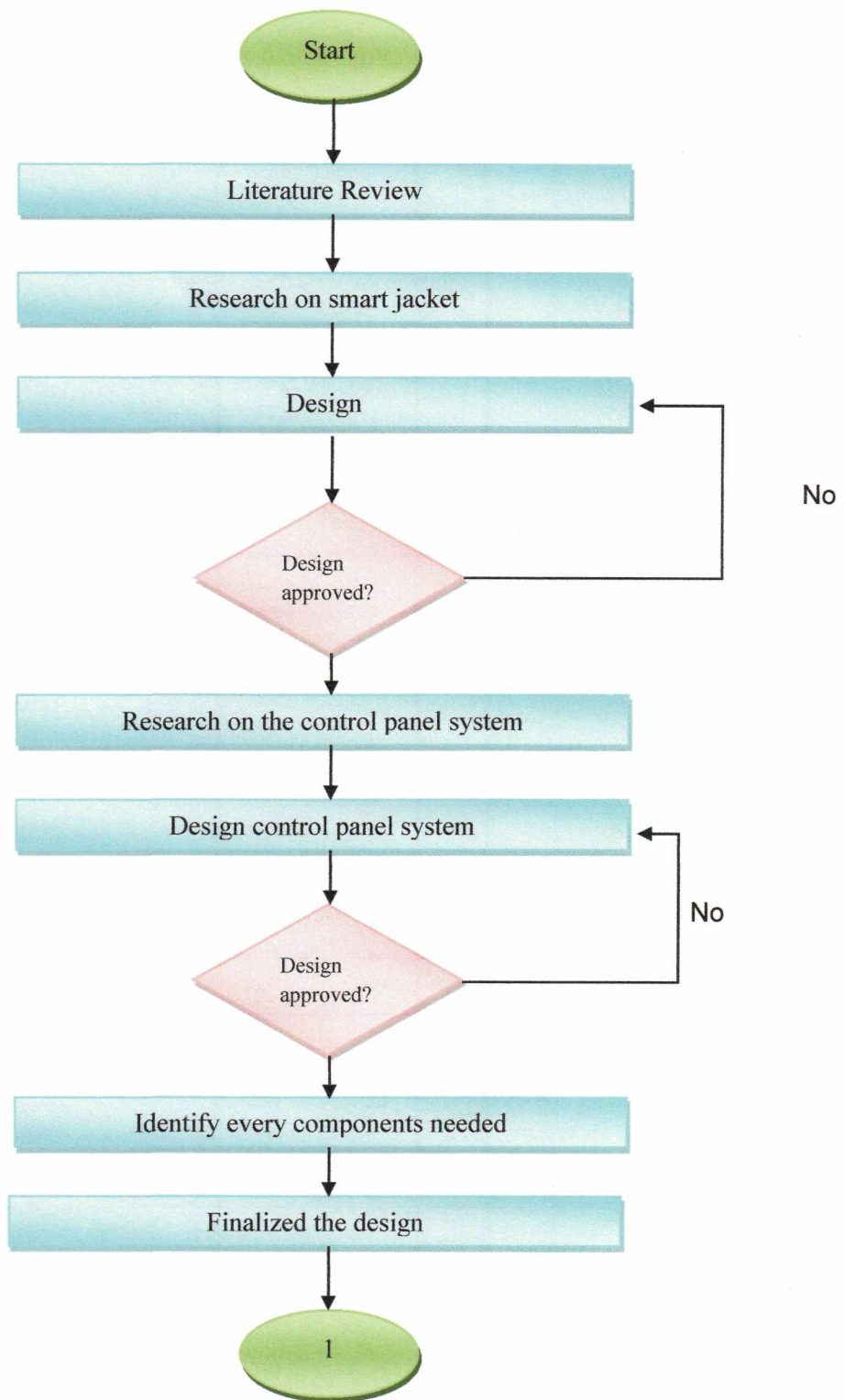


Figure 4.1: Idea Generation Flow



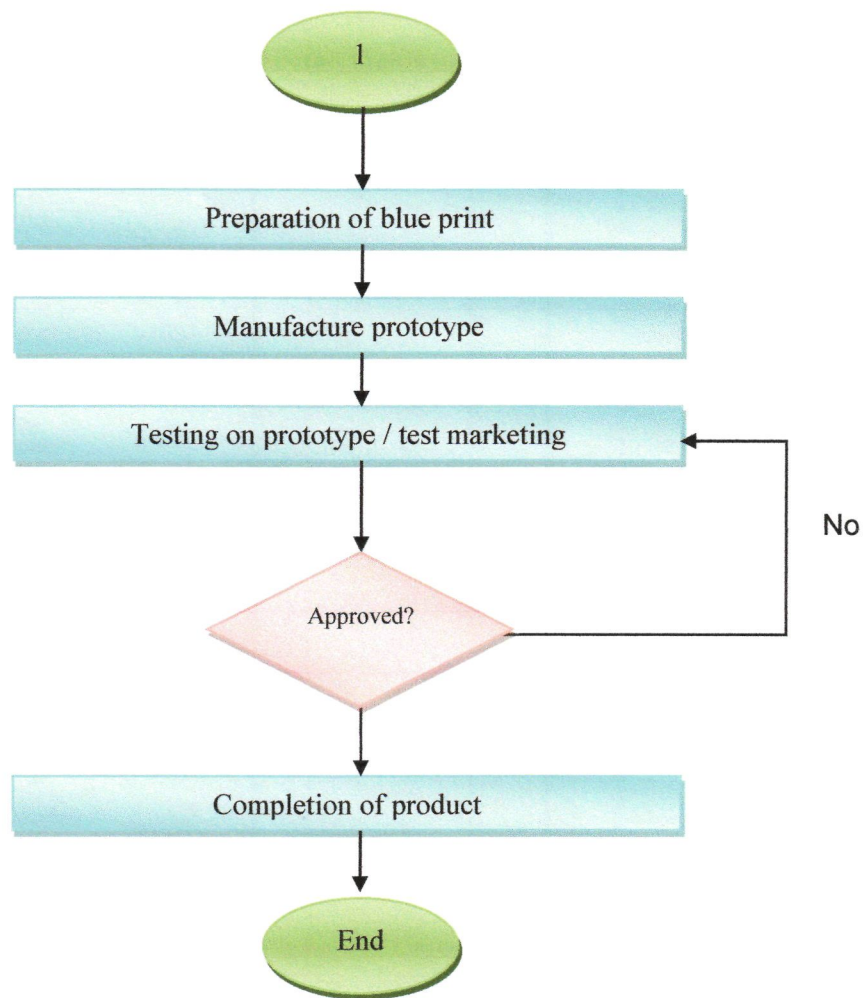


Figure 4.2: Prototype production

## 2.4 Product Design/Features

Among the unique features are:

- The First Climate Control Jacket
- Control Your Jacket Through The App
- Built-in portable battery refuels your mobile phone anywhere on the go.
- Conveniently listen to music anywhere with built-in earphones that will never dangle around.
- Easily control your music without touching your mobile phone with Bluetooth connected jacket badge.
- Built-in glove keep your hands warm during unexpected cold. Feeling a little too warm? Zip open the vent to let the air flow around.
- Smart Jacket is equipped with LED light in case the moon light is not bright enough.
- The jacket has music auto-play pocket and auto-silent mode pocket, but it also has total of 10 pockets for passport, cards, sunglasses, earphones, key-chain, and portable battery.
- USB and IOS cable for charging purpose.
- Water resistant.

## 2.5 Concept Testing

Concept testing is the initial test for most new product designed. It involved the process of using quantitative and qualitative methods to evaluate consumer response to a product idea prior to the introduction of product to the market. After we had done with these methods, we found that people or respondents strongly acceptance to this product.

Currently there is no competitor that utilize the same technology that combine all of the multifunction jacket criteria.

## 2.6 Build Prototype

A prototype is the first physical depiction model of the new product. After we get some comments and criticism, our company decides this design to the model of product.

### MAIN FUNCTION



## 5.0 CONCLUSION

Smart jacket is an ideal solution. This is because smart jackets are designed with a variety of modern technology that is very comprehensive where users will feel comfortable, easy, and do not need to change with other items because they have attractive and fit appearance to any formal or informal reception. Among the modern features that are added are the shapes that can be worn by all human body sizes. Equipped with temperature controller inside the jacket. the sensor that is inside the jacket will ensure the temperature inside the jacket will be in optimum condition. The jacket is also equipped with a usb drive to charge the phone or any gadget. This jacket also has an ideal sweat absorption system if the user wears during heavy physical activity, this sweat will accumulate in one outlet and can be washed after use.

The jacket is also created from materials that are resistant to water. The jacket also functions as a Personal Floating Device or a life jacket and lasts for a week in the water.

## 6.0 REFERENCES

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## 7.0 APPENDICES

### Management Team

| TEAM MEMBERS                   | POSITION  | SCOPE OF WORK   |
|--------------------------------|---|---|
| Mohd Norhafiz Bin Maszalan     | Financial Leader<br>Logistic/Treasurer/Marketing Leader | Planning financial cost and strategies for the product.<br>Preparing materials for the project needs. |
| Muhammad Ainuddin Bin Maszalan | Product Designer/<br>Software/Application Designer      | Designing the product/<br>Creating and designing apps to be used in the product                       |

### Other Required expertise

| Expertise                        | Job Description  |
|----------------------------------|--|
| Software Engineer                | Designing, building and improving the program of control system    |
| Electrical & Electronic Engineer | Building and exploring the best electrical circuit for the product |