



UNIVERSITI  
TEKNOLOGI MARA  
MALAYSIA

## **ORIENTAL ELECTRONIC TAEKWANDO VEST**

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## 1. EXECUTIVE SUMMARY

Electronic vest is a new model in taekwondo sport. The system's intelligence is "hidden" inside the vest. The Oriental ETV is an intelligent combination of a pneumatic element fitted to the human body and an ultra-modern electronic system consisting of piezoelectric sensors and high-performance radio technology on a Bluetooth and Radio Frequency Identification.

It is designed in such a way that it is tailored exactly to its functions on the human body, taking into consideration body mass, lateral ribs, lower abdominal muscles, upper abdomen, breastbone and back. Therefore, the vest only functions correctly on the human body. Testing it on other objects will give completely unreliable and false results. Accordingly, each vest size is individually calibrated based on sex, body, weight and foot size.

The Oriental ETV meets modern technology standards. Athletes will accept the system completely because of the transparent nature of the judging, trainers will refine hitting techniques and judges will face up to the new challenges. This means the way is clear for tournament organisers to make management much simpler, to get people into the halls and in front of the television watching the sport, and therefore to find new sponsors to bring in sources of capital to help the further positive development of the sport. Now it is up to the WTF to give out the right signals.

## 2. INTRODUCTION

### 2.1 Problem Statement

Taekwondo is one of the most systematic and scientific Korean traditional martial arts, that teaches more than physical fighting skills. Nowadays, taekwondo has become a global sport that gained an international reputation, and stand among the official sport in Olympics. In taekwondo competition, a judge will determine the point score of players and decide the winner of the games manually. However, sometimes the judge may overlook the critical point and the point may not be counted. This is the reason a systematic system is needed to overcome the problem. Therefore, we would

like to introduce the electric taekwondo vest that help the judges to evaluate the scores more precisely. The electronic vest can detect kicks and punches and give out scores automatically. The scores are link to the computer software.

## 2.2 Methodology: Data Collections

There are 2 methods that had been used to collect the data for the new product development. The methods are:

- Distributing questionnaire

We had distributed the questionnaire among the students in UiTM Puncak Alam. There is a total of 30 multiple choice of questions.

- Face-to-face interview

We had interviewed several UiTM Puncak Alam students using the different question from the distribution questionnaire. The data is recorded and analysed.

## 2.3 Limitation of product

There are a few limitations during development of the new product. Firstly, we are lack of reading and experience on how the taekwondo being judge especially in real competition. Besides that, we are only able to watch one taekwondo match due to limitation of time. This is the reason why we cannot identify or allocate the sensor to specific part of electric taekwondo vest where the usual taekwondo kick or punch being hit. Next, in the aspect of market research, the lack of respondents may also be a negative factor for our research. For example, when we distribute the questionnaire not everyone willing to anticipate to answer the questionnaire due to some personal matters. Besides that, the other disadvantage of performing market research is the lack of an experienced interviewer representing the data collected. Moreover, the maintenance service of electric taekwondo vest cannot serve large customers at one time. Therefore, the improvement should be made for the electric taekwondo vest to make sure it can be served for prolong time.

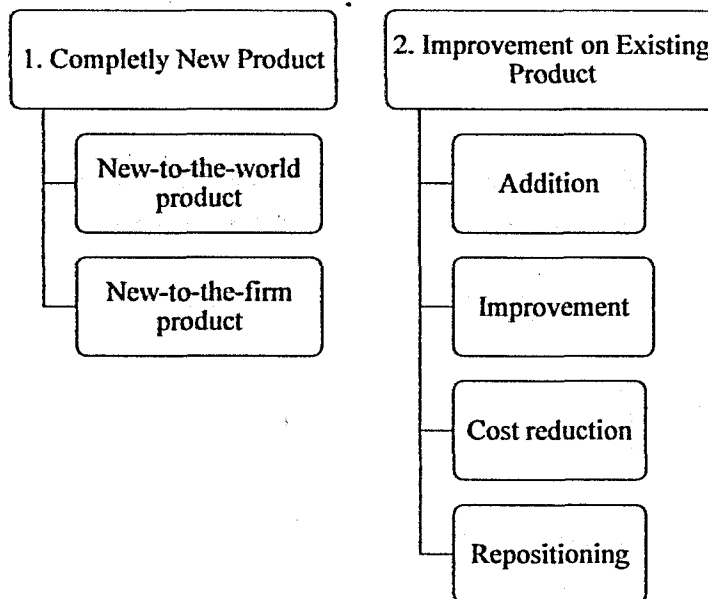
### 3. NEW PRODUCT DEVELOPMENT

#### 3.1 Definition

The product is Electronic Taekwondo Vest. This product is suitable for Taekwondo tournament to be judge more precisely; it helps to make marking easy, fair and reliable. It can detect kicks and punches and give out scores. The scores are link to computer software.

#### 3.2 Classification of NPD

There are 2 classification of new product which is visualized as follow:



1. The first classification of NPD is completely new product which divided into 2 parts;
  - (i) New-to-the-world (NTTW) product  
NTTW is a new invention product which will create a new market
  - (ii) New-to-the firm (NTTF)  
Also known as a new product line, NTTF is a new product to the company, but not the marketplace.