



اَبُو سَيِّدِي تَكُونُ لَوْ كُنِي مَارَا
UNIVERSITI
TEKNOLOGI
MARA

THE SMART WHEELCHAIR

ENT600

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EXECUTIVE SUMMARY

Technology plays an important role in human life nowadays. Technology is used to solve human problems and, with the advent of technology, it can help to give humans a better quality of life. Since the concept of the technology itself is to solve real-world problems, then, there is our company, The Catalyst coming out with an innovation of Internet of Things technology, namely the Smart Wheelchair. This technology of Smart Wheelchair aims to help the elderly with wheelchairs by detecting the occurrence of a fall, then sending a notification alert to the caregivers.

The Smart Wheelchair is a new product developed to the world, where it will lead to a new market, satisfying the need of the consumers if properly developed, and will reach the international market if marketed strategically. By surveying the targeted customer, the arising issue regarding this product of Smart Wheelchair is addressed. As well, Consumer Trends Canvas or also known as CTC is being implemented to help the company understand any consumer trend. By completing CTC analysis, the company can gather and analyse insights regarding consumer trends and transform them into an innovation, which opens to a business opportunity.

During the new product development process, there are five different tasks have been performed before introducing the products to the consumer. The task accomplished includes the research and development, designing the product, conducting concept testing, making the prototype and lastly conducting a test marketing. The 5 processes carried out during new product development are further explained in one of the sections in this report.

1.0 INTRODUCTION

This section will serve as the introduction for the new product development of the Smart Wheelchair by The Catalyst company.

1.1 BACKGROUND OF THE COMPANY

The Catalyst is a new technology company that sells and produces a Smart Wheelchair using the Internet of Things technology. This product is completed with smart fall detection that will send the caregiver a notification if a fall is detected. As well, this product has an extra feature where it can track the location of the wheelchair user. This add-on features of tracking the real-time location is developed for the caregiver to reach the wheelchair user in case of emergency.

The founder, Nik Afiqah Binti N. Ahmad Yani had a vision for the company to grow in the technology field. Hence, the idea of developing the Smart IoT Wheelchair is believed to be a start-up product for The Catalyst company.

Table 1 Management Team

Key Management Roles	Name
General & Administrative Manager	Nik Afiqah Binti N. Ahmad Yani
Operation Manager	Nur A'fyah Binti Zaimy
Computer Information System Manager	Muhammad Amirul Aiman Bin Rozali
Financial Manager	Siti Nurhawani Binti Razif
Marketing Manager	Nur Aqilah Binti Zakaria

2.3.2 PRODUCT DESIGN AND FEATURES

This subsection of the new product development process explains in detail the design of the product together with its features. Since this product consists of the smart wheelchair and the mobile application, thus, the product design and features were described separately to give a depth and deeper understanding of the products.

2.3.2.1 SMART WHEELCHAIR

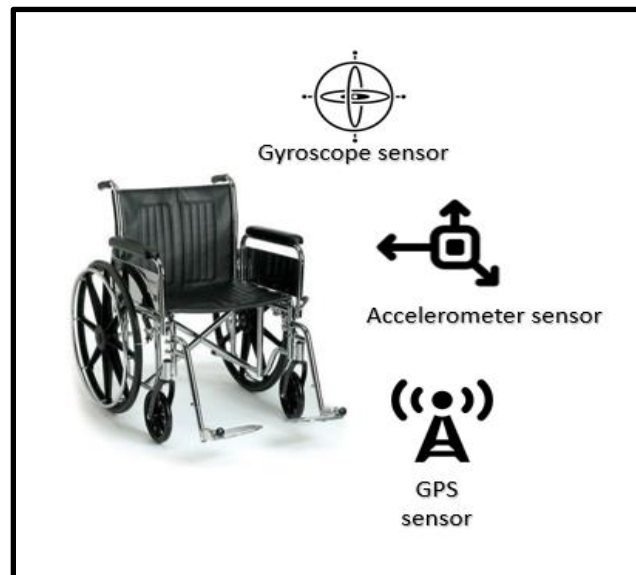


Figure 6 The Smart Wheelchair's components

Figure 6 above depicts the components used to design the smart wheelchair. The components required to achieve the function include a gyroscope sensor, an accelerometer sensor, a GPS sensor and a microcontroller unit. The detailed description of each component will be discussed in the following subsection.

1) Gyroscope sensor

A gyroscope sensor or also being called a gyroscopic sensor is a sensor used to detect the measurement and maintain an object's orientation and angular velocity. Since this sensor can sense the changes in orientation and rotational motion, thus, it is one of the best options to be implemented in the new technology of smart wheelchairs. In addition, this kind of sensor is also being embedded in the mobile device to sense the orientation of the mobile phone. This is being implemented to ensure the user a better experience with mobile devices. Consider the benefits