

Design and development of smart door closer mechanism

**Khaled Musleh, Walid Aljadaan, Omar Almansour, Saud Suwaidan,
Emad Soidan, Tamer A. Sebaey[†]**

Engineering Management Department, College of Engineering
Prince Sultan University
Riyadh, 11586, Saudi Arabia

[†] tsebaey@psu.edu.sa; sepaey@hotmail.com

Abstract

Most of the doors are designed to close automatically or to be locked against closer at only one position, which is the full opening. In this work, the team focuses on the doors that have a hydraulic closer mechanism with the aim of locking the door against closing at any position. Our product adopts an electrical button to activate and another to deactivate. The door when being held at any position can open freely but instead of closing, it will return to the same position. Main market will be construction companies and door accessories stores. As an initial market, the team is looking to adapt the doors in institutional and governmental buildings. The team is expecting the product to have 50% gross margin and be introduced at first quarter 2020.

This work is accomplished as a course project of the Product Design and Development course that is running through the fall 2019 semester at Prince Sultan University.

Keywords

Development, Design, Door closer, Smart, Mechanical system.

Biographies

Khaled Musleh is a junior student at the Engineering Management Department of the Prince Sultan University. His main interest is the management of industrial systems as his studies focus on the Manufacturing and production and Management.

Walid Aljadaan is a senior student at the Engineering Management Department of the Prince Sultan University. His main interest is the management of industrial systems as his studies focus on the Manufacturing and production and Management.

Omar Almansour is a senior student at the Engineering Management Department of the Prince Sultan University. His main interest is the management of industrial systems as his studies focus on the Manufacturing and production and Management.

Saud Suwaidan My name is Saud Suwaidan. A production and manufacturing engineering management graduate. I have an interest to work with military equipment and products and I'm planning to begin creating something that can be worthy for the military industry.

Emad Soidan is a senior student at the Engineering Management Department of the Prince Sultan University. His main interest is the management of industrial systems as his studies focus on the Manufacturing and production and Management.

Tamer A. Sebaey is an associate professor of design and product at Prince Sultan University. Tamer's main research interest is the design, manufacturing, testing, modelling, and optimizing the composite structures for transportation application. His PhD studies were conducted at the University of Girona in Spain and got the best thesis award for 2013 through the whole university. The main focus of applications for his research is the aeronautical. However, other applications as the automotive, piping, infrastructures, etc., are also of interest to him. He was an assistant professor from 2013 – 2018 and then he got the promotion to associate professor, due to excellence in research, in 2018. Tamer is an active researcher with more than 40 articles on Scopus with h-index of 15 (As per Nov. 2019 Records). He is also an active member in the composite scientific research community with several presentations in international conferences and industries. He is also a recognized reviewer in most of the composite materials and structures journals. His current activities focus on the design of composites for more safe transportations.