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Cawangan Melaka

V-MIIEX

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VIRTUAL–MELAKA INTERNATIONAL INTELLECTUAL EXPOSITION

ROAD TO COMMERCIALISATION

V-MIIEX BOOK

V - MIIEX BOOK
'ROAD TO COMMERCIALISATION'

EDITORS AND COMPILERS:
Dr. Nur Hayati Abd Rahman
Dr Syukri Abdullah
Wan Hasmat Wan Hasan
Aini Qamariah Mohd Yusof
Norazlan Anual
Dr. Khairunnisa Abd Samad
Nordianah Jusoh @ Hussain
Rozana Othman
Norlela Abas
Azira Rahim

COVER DESIGN:
Adi Hakim Talib

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Division of Research and Industrial Linkages
UiTM Cawangan Melaka
KM26 Jalan Lendu,
78000 Alor Gajah, Melaka
Tel: +606-5582094 / +0606-5582190 / +606-5582113
Email: miiexuitm@gmail.com
Website: https://www.miiex.my/
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FOREWORD

ASSOC. PROF TS. DR MOHD RASDI ZAINI
Rector
Universiti Teknologi MARA (UiTM) Cawangan Melaka

Welcome to Virtual-Melaka International Intellectual Exposition 2022 (V-MIIEX 2022). It is an honour for me on behalf of UiTM Melaka Branch to thank all of you for joining the programme and we are proud to inform you that this is the 12th year consecutively, UiTM Melaka Branch is organizing this exposition.

V-MIIEX 2022 is a platform to improve the commercialization collaboration among industries and communities and at the same time, we also give the opportunity to academicians and students to share ideas and increase their potential innovation products with the industries and communities through their projects. This exposition also serves as a platform to cultivate and upload the nation's innovation culture by presenting new ideas and research by young people, especially from academia, universities, college, high schools, and primary school students.

The economy and development of the country faced a challenging phase in 2021 due to the Covid-19 pandemic. We faced changes in business, education, society, and lifestyle. However, the pandemic proved to be a blessing in disguise as it somehow gave people ideas which would be beneficial to improve their lifestyle and solve problems that might occur in the future. Besides, the new digital landscape also inspires more innovation and new ideas that contribute to various activities such as business and industries. As a university that encourages the "Research, Innovation and Commercialization", this exhibition is organized to encourage more commercialization of products that are beneficial to scholars, industries, and communities to tackle such issues to improve our present and future life.

Since 2009, UiTM Melaka Branch has successfully become the organizer for this innovation exposition. We are not only successful in organizing the exposition, but I would proudly say that we have also successfully embarked on commercialized products. With the number of participants for this year's exhibition, we believe that more commercialized products will be produced in line with the theme for this year, "Road to Commercialisation".

This exposition would never happen without dedication, teamwork, and commitment. A round of applause should be given to the committee teams as the backbone of this exposition. Their hard work, effort, and time made this exposition possible.

Finally, I would like to conclude this brief remark by thanking all the participants and stakeholders for joining the exposition, we hope that this collaboration never ends here.

Thank you.

FOREWORD

DR. NUR HAYATI BINTI ABD RAHMAN
Deputy Rector Research & Industrial Linkages
Universiti Teknologi MARA (UiTM) Cawangan Melaka

It is a great pleasure to welcome all the participants and presenters to the Virtual Melaka International Intellectual Exposition (VMIIEX 22). I am delighted that through this periodic event, we managed to bring together scholars and professionals from various fields to engage through this virtual platform where ideas and breakthrough are discovered and leveraged for commercialization potential.

Since 2009 UiTM Cawangan Melaka has held twelve Invention and Innovation Design competitions and this year we are very honoured to have the second year of VMIIEX organized in digital platform. This has proven that despite the global challenges due to the recent pandemic, it is never an issue for UiTM Melaka to continuously organize this yearly prestigious event and to support the ministry's aspiration in leveraging creativity and innovation in the new norm.

VMIIEX 22 is organized with no sole objectives of accomplishing the University's KPI but instead we are determined to make this programme as the place to help heighten commercialization collaboration in research and innovation with the industry and community through joint exhibitions from various external organizations.

Our aspiration is to also provide exposure and opportunities to academic staff as well as students from public and private universities to engage in direct excellent scholarly activities with the industry and community through activities that can be measured and assessed. As for the Research and Industrial Linkages Office of UiTM Melaka, this exhibition is seen as the platform that can encourage active collaboration and knowledge transfer with industries; objectively to support various activities that will benefit all stakeholders from the various government agencies, local and international universities, industries and communities.

Through the theme of "Road to Commercialization" this year, V-MIIEX 22 is committed to have this event as a boulevard to inspire and cultivate creativity and innovation to the numerous levels of inventors through exposure on latest technologies, astonishing ideas and creative designs with great potential to be commercialized. For this year, we proudly introduce a special category which is the "Endemic Challenge" as the provision to the government of Malaysia's goal of moving towards the endemic.

To ensure that the competing products in this exhibition is not exclusively for the purpose of competition, V-MIIEX 22 is dedicated for the commercialization of highly potential innovation products, which is attained through its active collaboration with tailored needs industries. The commercialization effort was not for income generation purpose only but it aimed to spearhead the development of quality products in line with industrial needs and community benefit.

Therefore, it is a great honour for me on behalf of the Research and Industrial Linkages Office as well as the organizing committee to have all participants in this competition and I would like to express my highest gratitude especially to the Rector of UiTM Melaka and all strategic partners and sponsors for supporting the event.

To finish, I sincerely wish VMIIEX 22 a remarkable success. I believe that this will not be the only collaboration between UiTM Melaka and the respective partners and linkages, but a beginning of a long and fruitful cooperation in future.

Thank you very much.

FOREWORD

WAN HASMAT WAN HASAN
Project Director V-MIIEX 2022
Universiti Teknologi MARA (UiTM) Cawangan Melaka

Assalamualaikum and Warmest Greetings.

It gives me an enormous pleasure, on behalf of the organizing committee to welcome all participants and presenters to the Virtual -Melaka International Intellectual Exposition 2022 (VMIIEX '22) with the theme "Road to Commercialisation". We are honoured and glad to welcome all participants to this biennial event.

This is the second time that we have organized this biennial event virtually. V-MIIEX 22 is an innovation competition, in which, innovation products, ideas and systems related to various science and technological fields are exhibited as a solution for the presented problems.

V-MIIEX22 expectantly will be a platform that gathers experts from academies, scientists, and researchers, locally and internationally, to contribute towards the growth of scientific and technological knowledge in each participant's specialisation and expertise.

The competition also serves as a platform to give fresh exposure to the various level of inventors, as well as to encourage the culture of innovation design focused on latest technologies and related to new norms technologies and inventions due to COVID-19.

V-MIIEX 22 is also hoped to be an avenue for gathering and disseminating the latest knowledge on ideas and acquisition of innovation among the participants. It is hoped that the competition will be able to open the mind of the participants towards latest technologies and design. It is also in line with the government's aspiration to encourage innovation activities in Malaysia.

As a final note, I would like to congratulate my fellow committee members for their tremendous effort, which have been critical to the event's success. In addition, I would like to thank our co-organizer, event sponsors and supporters. Optimistically, we wish that all new knowledge that is discovered, invented, or innovated will drive towards our future sustainability.

Thank you.

ABOUT V-MIIEX

The world after COVID-19 is unlikely to return to the world that was. Despite the challenging pace during the pandemic, the strong rebound is expecting in this exciting year 2022. Malaysia is welcoming the great prospects ahead with positive impact on the country's economy and development. Hence, the hope for greater opportunities motivates for more creative thinkers to come up with innovative ideas that can be put forward to be harnessed to overcome similar problems in the future. V-MIIEx 2022 is one of these platforms which contribute relevant ideas that could help communities of all walks of life cope with this pandemic.

UiTM has identified research, innovation, and commercialization to be among the core components and strategic effort towards becoming a well-known and prominent university. Aside from realizing this goal, with these components and efforts, fostering the development of knowledge, generating financial stability of the university, and producing knowledgeable academicians are also potentially achievable.

By having invention and innovation competition yearly, UiTM Cawangan Melaka is confident that it could further enhance creative and innovative abilities among staff and students. In support of the government notion which upholds the importance of innovation, UiTM Cawangan Melaka has taken the initiative of organising the Virtual Melaka International Intellectual Exposition (V-MIIEx).

In instigating and nurturing the continuous culture of inventing and innovating, this event is an ideal platform for lecturers, administrative staff, students, and the public to showcase and commercialize their products or prototypes as well as novel ideas. The first IID which was held nationally in UiTM Cawangan Melaka in 2009, has successfully gathered and displayed more than 37 inventions and innovations. Accordingly, to continue this strong passion towards inventing and innovating, the IID competition should be continued and celebrated.

With that, the Division of Research and Industrial Linkages will be organising its 12th IID competition, the Virtual - Melaka International Intellectual Exposition (V-MIIEx 2022) with the theme, 'Road To Commercialisation'. V-MIIEx 2022 hopes to welcome 200 competing products to be showcased and commercialized, at the same time, attract attention of related and matching industry.

Objectives

1. Encourage and instill passion towards inventing and innovating among UiTM Cawangan Melaka staff, students and academicians of local and international higher education institutions;

2. Highlight distinguished talents of skillful inventors and exhibit intellectual products, inventions and innovations among local and private tertiary institutions, government and private agencies, including international participants;

3. Become an effective Business Matching platform for participating research products, matching industries and partnering government agencies;

4. Recognise, inspire and promote invention and innovation products to be patented and commercialized;

5. Increase passion towards inventing and innovating through research and boost interests of government and non-government agencies to obtain consultancy services from a line up experts of higher education institutions and UiTM Cawangan Melaka.

Emergency Exit Lock Set For Grille Doors Or Windows

Jamazuki Bin Othman[1], Mohamad Salahudin Bin Mohamas Saad[2], Mohd Fahmi Bin Hamid @ Siron[3]

[1, 2, 3] Mechanical Engineering Department, Politeknik Tuanku Syed Sirajuddin, Arau, Perlis Malaysia.

[1]jamazuki@ptss.edu.my, [2]salahudin@ptss.edu.my, [3]fahmihamid@ptss.edu.my,

Abstract

Housing is a basic human need for shelter for human activities. It improves the well-being of the people and contributes to economic development by integrating social factors into the economic system. Housing should be free from all sort of criminal activities so as to accord the inhabitant the opportunity of realizing the full potentialities of qualitative housing as enshrine within the united nation context of adequate housing. The grille door of any premises is commonly locked by a locking device or a padlock through the holes of the locking brackets. However, in case of an emergency or a panic situation, the key to open the locking device may not be available and loss of lives could happen. This invention, the emergency lockset is designed to enable one of the locking brackets to be easily detached from the structure and to allow the grille door to open without using a key. This Emergency Exit Lock-set for Grille Door is characterized by a rectangular elongated housing with a detachable locking bracket held by a movable plunger and an actuator which is linked to the plunger. The housing of the emergency exit lockset is installed in the frame of the grille structure. Upon triggering, the actuator retracts the plunger and the detachable locking bracket is released and separated from its housing. This invention takes into consideration the function of the grille door which is to maintain the security of the premises because the actuator that releases the locking bracket is mounted inside the premises.

Keywords: Emergency Lock Set, Housing, Grille Door and Window, Locking Bracket

1. INTRODUCTION

Human need housing for shelter or other related daily activities. Housing improves the well-being of the people and integrates social factors into economic development. It involves human enterprise and is a key sector of the economy which is a pre-requisite to national socio-economic development. The housing sector plays a unique role in the development process and is considered a prerequisite and objective for development. Housing should be free from all sort of criminal activities so as to accord the inhabitant the opportunity of realizing the full potentialities of qualitative housing as enshrine within the united nation context of adequate housing. In an effort to have personal safety of the property, residences will fit their houses or apartments with burglary proof devices to prevent potential burglar especially in a high density, low amenity residential neighbourhood due to higher degree of crimes. Likewise, the fitted barriers are now becoming a source of concern due to its resultant effect on emergency situation such as fire. Fire has claims lot of lives and property. Some of which is as a result of non-accessibility to the trapped victims inside the buildings. Today, most buildings with grille doors and windows are designed without the fire escape features.

The present invention relates generally to an emergency release system comprises of at least

one lockset housing being mounted at grille window frame, at least one engaging means mounted to one edge of the grille window, at least one latching assembly integrated with said lockset housing from top cover of said lockset housing and at least one actuating means mounted from inside of premises. Said actuating means is in connection with said latching assembly by using at least one cable to trigger disengagement of grille window from its grille window frame for emergency escape.

This invention relates in general to a permanently metal grille door or window with a built in slotted structural cum with quick release locking system mechanism which in an emergency could be released by pulling a cable located on the inner side of the window.

2. OBJECTIVE

This invention relates in general to a permanently metal grille window with a built in slotted structural cum with quick release locking system mechanism which in an emergency could be released by pulling a cable located on the inner side of the window. The objectives of this research are: (i) To enable one of the locking brackets to be easily detached from the structure and to allow the grille door to open without using a key; (ii) To innovate existing mechanical mechanism with electronics functionalities such as automatic detachment system with smoke buzzer, alarm connectivity, and reset button.

3. NOVELTY & INVENTIVENESS

The project has emphasized on the objectives and particular scopes needed. The project is generally to a permanently metal grille door or window with a built in slotted structural cum with quick release locking system mechanism which in an emergency could be released by pulling a cable located on the inner side of the window.

Figure 1 showed the finalized prototype development of the emergency exit lockset for grille door with electronics functionalities such as automatic detachment system with smoke buzzer, alarm connectivity, and reset button as shown in Figure 2.

A quick release locking system comprising:

a) An elongated rectangular lockset housing is supported by a window frame and an outer face of grille window;

b) An actuator comprising hold back mechanism, plunger spring and stopper having a cable joining the actuator to the elongated rectangular lockset housing by a plunger.

c) The quick release locking system, wherein the window frame includes a plunger, a plunger spring and a stopper. The plunger can be moved to a retracted position when pulled by the cable and returns to its original projected position by the pressure of the plunger spring and the pressure of the plunger spring is adjusted by the plunger spring and stopper.

d) The quick release locking system, wherein the holdback mechanism which has a stopper that prevents the plunger from returning to its projected position after the plunger is pulled to a retracted position.

e) The quick release locking system, wherein the elongated rectangular lockset housing is held in the window frame by the plunger.

f) The quick release locking system, wherein the actuator consists of a hold back mechanism, plunger spring and stopper.

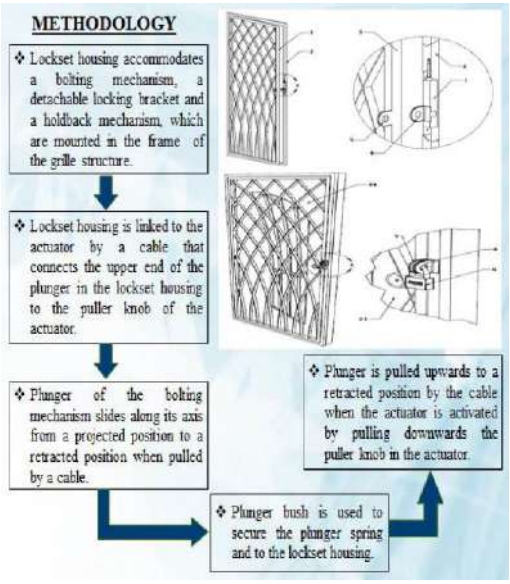

Figure 1: Design of working principles

Figure 2 Finalized prototype development

4. PRACTICALITY & USEFULLNESS

The benefits to the community are: (i) Security and inherit safety features; (ii) Door cannot be opened from the outside when it is locked; (iii) Those inside the building can use these doors by activating the panic mechanism from the inside of the door; (iv) Can be opened quickly during an emergency; and (v) People with limited mobility (i.e. those using wheelchairs) and even young adults can even activate it.

5. CONCLUSION

Grills in housing are pre-fabricated materials normally made of metal in form of iron fitted on the door, window, balcony or stair ways in order to provide and enhance security and safety of a building especially against unauthorized intrusion. It has always been given adequate attention in building finishing of residential housing. In accordance with the present invention, the quick release locking system for grille window is provided which has a rectangular elongated housing supporting a window structure in which a plunger slides between projected and retracted positions. In the projected position, the plunger is projected through the built in slotted structure thus holding it in the housing. The plunger is movable to a retracted position in response to a pull by an externally attached cable at one end of the plunger and thus releases the built in slotted structure from the housing. The cable can only be pulled from the inside of the premises through the actuator. When the plunger is pulled, the quick release locking system' mechanism will be driven to open the grille window. The opened grille window can be locked back by pushing the grille window structure to its initial position.