

MELAKA
INTERNATIONAL
INTELLECTUAL EXPOSITION

MIIEX'24

12 JUNE '24

Dewan Taming Sari,
Universiti Teknologi MARA Caw. Melaka,
Kampus Alor Gajah, Melaka

*"Empowerment of Special
Needs through Invention
& Innovation"*

**EXTENDED
ABSTRACT**

MiiEX'2024

MELAKA INTERNATIONAL INTELLECTUAL EXPOSITION 2024

**“EMPOWERMENT OF SPECIAL NEEDS THROUGH INVENTION AND
INNOVATION”**

Copyright © 2024

UiTM Cawangan Melaka

KM26 Jalan Lendu,

78000 Alor Gajah

Melaka Bandaraya Bersejarah

Website: <https://vmiex.uitm.edu.my/>

MiiEX'2024

MELAKA INTERNATIONAL INTELLECTUAL EXPOSITION 2024

**“EMPOWERMENT OF SPECIAL NEEDS THROUGH INVENTION AND
INNOVATION”**

EDITORS AND COMPILERS:

Dr Maimunah Johari

Puan Norlinda Tendot Abu Bakar

Puan Maymunah Ismail

Puan Nor Halawah Ahmad

Cik Afzan Shahilla Amir Hamzah

Puan Azira Rahim

COVER DESIGN:

Rashidy Samsudin

Wan Nur Khalisah Shamsudin

Ridzuan Adli bin Azidin

PUBLISHED BY:

UiTM Cawangan Melaka

KM26 Jalan Lendu,

78000 Alor Gajah

Melaka Bandaraya Bersejarah

Tel: +606-5582094 / 2190 / 2113

eISBN: 978-967-2846-81-9

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form by any means, electronic, mechanical, photocopying, recording, or otherwise, with permission of the copyright holder.

CONTENTS

FOREWORD BY THE RECTOR OF UITM CAWANGAN MELAKA

FOREWORD BY THE DEPUTY RECTOR (RESEARCH & INDUSTRIAL LINKAGES)

FOREWORD BY THE PROJECT DIRECTOR

**FOREWORD BY MELAKA STATE EXCO OF SCIENCE, TECHNOLOGY, INNOVATION AND
DIGITAL COMMUNICATIONS**

MIIEX'24 ORGANISING COMMITTEE

ABOUT MIIEX'24

INNOVATION, INVENTION, AND DESIGN

FOREWORD BY THE RECTOR OF UiTM CAWANGAN MELAKA



Professor Ts. Dr. Mohd Rasdi bin Zaidi

Rector, Universiti Teknologi MARA (UiTM)

Cawangan Melaka

Welcome to the Melaka International Intellectual Exposition 2024 (MIIEX '24). It is an honour for me, on behalf of UiTM Cawangan Melaka, to thank all of you for joining MIIEX '24. We are proud to inform you that this is the 13th consecutive year that UiTM Cawangan Melaka is organizing this exposition. Since 2009, UiTM Cawangan Melaka has successfully hosted this innovation exposition. Not only have we succeeded in organizing the exposition, but we have also successfully embarked on commercialized products.

2024 is a special year where MIIEX 2024 emphasizes the development of special needs. As we know, special needs indicate a limitation in a person's ability to engage in and benefit from various aspects, such as daily activities and education. Hence, with the theme "Empowering Special Needs Through Invention and Innovation," it is a platform for industries, professionals, academicians, students, and communities to share their innovative ideas and products to increase accessibility for those with special needs.

The successful implementation of MIIEX '24 is our joint success. This event was supported by the Melaka state government through YB Datuk Fairul Nizam bin Roslan, the EXCO of Science, Technology, Innovation, and Digital Communication. I also want to express my

gratitude to Universitas Negeri Padang, Indonesia, Universitas Muhammadiyah, Makassar, Indonesia, the International Association of Economic and Businesses (IAEB), Universiti Sains Islam Malaysia, Ibnu Umami Maktum Research Center (UMMI), USIM, and The Southeast Asia Minister of Education Organization Regional Centre for Special Educational Needs (SEAMEO SEN) as our co-collaborators for MIIEX 2024.

The collaboration from various parties in MIIEX '24 is a platform that will improve cooperation and interweaving among industries, professionals, academicians, students, and communities in shaping their potential in developing innovation products. This exposition also serves as a platform to cultivate and uphold the nation's innovation culture by presenting new ideas and research by young people, especially from academia and universities. Indirectly, MIIEX '24 will encourage all inventors towards empowering Science, Technology, Engineering, and Mathematics (STEM), especially in primary and secondary schools.

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 "Research and Innovation," we aim to foster more innovative products that benefit scholars, industries, and communities, addressing issues to improve our present and future life.

This exposition would never happen without dedication, teamwork, and commitment. A round of applause should be given to the committee teams, who are 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 BY THE DEPUTY RECTOR (RESEARCH & INDUSTRIAL LINKAGES)



Associate Professor. Dr. Nur Hayati binti Abd Rahman

Deputy Rector (Research & Industrial Linkages), Universiti Teknologi MARA (UiTM) Cawangan Melaka

With much passion and privilege, let me warmly welcome all of you to the Melaka International Innovation Exhibition (MIIEEX), UiTM Cawangan Melaka's flagship event. I firmly believe that events such as these demonstrate the gradual evolution of this platform in terms of its significance and its governing principles within the sphere of learning and the broader scholarly society.

The theme for this year, "Empowering Special Needs Through Invention and Innovation," strongly connects to our mission of using research and technology to make a positive impact on the world we live in. Besides enforcing the message of diversity, this theme also reaffirms our focus on creating products to improve the lives of people with disabilities (PWDs). Such innovations are vital as only through focused constructive changes can society become more sensitive to the needs of all members.

MIIEEX allows researchers, students, and industry professionals to come together, share their innovative research, and develop viable research partnerships. It has been great to see the enthusiasm of the participants and the efforts they put into their projects, which can offer various social and economic benefits. This is why one can state that MIIEEX is a great

opportunity for creating connections between the academic environment and industry, facilitating the implementation of innovative and promising projects.

Finally, I would like to express my sincere appreciation to all the members and supporters of the organizing committee, all the participants, sponsors, and everyone involved in preparing this event. I want to express my gratitude for your commitment and involvement, as the success of MIIEX and the development of an active culture of innovation in our university and beyond is partly owed to your support.

Thank you

FOREWORD BY THE PROJECT DIRECTOR



Dr Zulkefli bin Muhamad Hanapiyah

Senior Lecturer

Assalamualaikum and Warmest Greetings,

It gives me a great pleasure, on behalf of the organizing committee, to welcome all participants and speakers to the Melaka International Intellectual Exposition 2024 (MIIEX '24) with the theme "Empowering Special Needs Through Invention and Innovation." We are honoured and pleased to welcome all participants to this biennial event.

MIIEX '24 is a platform that gathers experts from local and international industries, academia, scientists, researchers, and the community to contribute to the advancement of scientific and technological knowledge. This knowledge helps develop disruptive innovation products that improve daily activities for businesses and the community, especially those with special needs.

MIIEX '24 provides an atmosphere for inventors of all levels to gain new exposure and collaborate. Indirectly, this promotes a collaborative and innovative culture that focuses on cutting-edge technologies and new standards in technology and creativity.

MIIEX '24 is anticipated to serve as an arena for participants to acquire and disseminate revolutionary information on ideas and innovation. It is intended that the competition will expose the contestants' minds to the latest technologies and designs, aligning with the government's goal of encouraging innovation in Malaysia.

Finally, I want to compliment my fellow committee members on their amazing efforts, which were vital to the event's success. In addition, I want to thank our co-organizers, event sponsors, and participants. Optimistically, we hope that all new knowledge discovered, invented, or innovated will lead us toward future sustainability.

Thank you.

**FOREWORD BY MELAKA STATE EXCO OF SCIENCE, TECHNOLOGY,
INNOVATION AND DIGITAL COMMUNICATIONS**



YB Datuk Fairul Nizam bin Roslan

Melaka State Exco of Science, Technology, Innovation and Digital Communications

Welcome to the Melaka International Intellectual Exposition 2024 (MIIEX '24). It is an honor for me, on behalf of UiTM Cawangan Melaka, to thank all of you for joining MIIEX '24. We are proud to inform you that this is the 13th consecutive year that UiTM Cawangan Melaka is organizing this exposition. Since 2009, UiTM Cawangan Melaka has successfully hosted this innovation exposition. Not only have we succeeded in organizing the exposition, but we have also successfully embarked on commercialized products.

2024 is a special year where MIIEX 2024 emphasizes the development of special needs. As we know, special needs indicate a limitation in a person's ability to engage in and benefit from various aspects, such as daily activities and education. Hence, with the theme "Empowering Special Needs Through Invention and Innovation," it is a platform for industries, professionals, academicians, students, and communities to share their innovative ideas and products to increase accessibility for those with special needs.

The successful implementation of MIIEX '24 is our joint success. This event was supported by the Melaka state government through YB Datuk Fairul Nizam bin Roslan, the EXCO of Science, Technology, Innovation, and Digital Communication. I also want to express my

gratitude to Universitas Negeri Padang, Indonesia, Universitas Muhammadiyah, Makassar, Indonesia, the International Association of Economic and Businesses (IAEB), Universiti Sains Islam Malaysia, Ibnu Ummi Maktum Research Center (UMMI), USIM, and The Southeast Asia Minister of Education Organization Regional Centre for Special Educational Needs (SEAMEO SEN) as our co-collaborators for MIIEX 2024.

The collaboration from various parties in MIIEX '24 is a platform that will improve cooperation and interweaving among industries, professionals, academicians, students, and communities in shaping their potential in developing innovation products. This exposition also serves as a platform to cultivate and uphold the nation's innovation culture by presenting new ideas and research by young people, especially from academia and universities. Indirectly, MIIEX '24 will encourage all inventors towards empowering Science, Technology, Engineering, and Mathematics (STEM), especially in primary and secondary schools.

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 "Research and Innovation," we aim to foster more innovative products that benefit scholars, industries, and communities, addressing issues to improve our present and future life.

This exposition would never happen without dedication, teamwork, and commitment. A round of applause should be given to the committee teams, who are 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.

MIIEX'24 ORGANISING COMMITTEE

COMMITTEE	NAME
PATRON	PROFESOR DATUK DR SHAHRIN BIN SAHIB@SAHIBUDDIN VICE CHANCELLOR, UNIVERSITI TEKNOLOGI MARA
CHAIRMAN I	YB DATUK FAIRUL NIZAM BIN ROSLAN MELAKA STATE EXCO OF SCIENCE, TECHNOLOGY, INNOVATION AND DIGITAL COMMUNICATIONS
CHAIRMAN II	PROF TS. DR RASDI BIN ZAINI
ADVISORS	ASSOCIATE PROFESSOR DR. NUR HAYATI BINTI ABD RAHMAN DEPUTY RECTOR (RESEARCH & INDUSTRIAL LINKAGES) TS. DR NADZRI BIN MOHD SHARIF DEPUTY RECTOR OF STUDENTS AFFAIRS DR MOHAMMAD NOR AFANDI BIN IBRAHIM DEPUTY RECTOR OF ACADENIC AFFAIRS
PROJECT DIRECTOR	DR ZULKEFLI BIN MUHAMAD HANAPIYAH
DEPUTY PROJECT DIRECTOR I	EN MUHAMMAD FAIRUZ BIN JAMIL
DEPUTY PROJECT DIRECTOR II	PN AINI QAMARIAH BINTI MOHD YUSOF
DEPUTY PROJECT DIRECTOR III	PN WAN HASMAT BINTI WAN HASSAN
SECRETARY	DR MASTURA BINTI RONI
	CIK SURYA AHMAD ROYALI
	PN BAIZURA BINTI BAHARIN
	PN NOOR RAFIDAH BINTI IBRAHIM

TREASURER	PN KHAIRUNNISA YUSOFF
	PN AINUL BASYIRAH BINTI ABDUL RAZAK
	PN RABIAH BINTI IBRAHIM
	PN SITI MUSLIHA BINTI MOHD IDRIS
	CIK NORZAHIDAH BINTI YACOB
PROMOTION	DR FADHLUR RAHIM BIN AZMI
	DR IRFAH NAJIHAH BINTI BASIR MALAN
	DR NORNAJIHAH NADIA BINTI HASBULLAH
CORPORATE AND PROTOCOL	AIDA NUR MOHD KODRI
	MOHAMAD SHAFIEI AYUB
	MOHD ARIFF MUSTAFA
	FAHMI SAMSUDIN
	MOHD HAFIFI MOHD SUPIR
	DR MOHAMAD HAFIFI JAMRI
ICT, HELPDESK & TECHNICAL SUPPORT	DR RAIHAH BINTI AMINUDDIN
	TUAN MUHAMMAD IDRIS IRFAN BIN TUAN MOHD AZAHAR
	RASEEDA BINTI HAMZAH
	TS. DR. NOR AFIRDAUS BINTI ZAINAL ABIDIN
DESIGN & MULTIMEDIA	EN RASHIDY SAMSUDIN
	RIDZUAN ADLI BIN AZIDIN
	WAN NUR KHALISAH SHAMSUDIN
JURY SELECTION AND MANAGEMENT	EN NORAZLAN ANUAL
	PN AFZAN NOR BINTI TALIB
	PN NUR HIDAYAH ZAINI
	CIK FARIHA AIZA BINTI RAMLY
	PN NURUL AIN BINTI MUSTAKIM
	PN NOORZALYLA MOKHTAR
	PN ZATUL HIMMAH BINTI ABDUL KARIM
	CIK MUNA KAMEELAH BINTI SAUID
	PN NOR MASLIA RASLI SAMUDIN
	PN NURHAFIZAH MOHD ZOLKAPLI
	CIK MILFADZHILAH MOHD JAMIL
	PN NUR HAZWANI BINTI MOHAMAD ROSELI
	PN GLADYS SEBI ENTIGAR

	PN NASHRAH BINTI TALIB
	CIK SITI NURUL IZZA HASHIM
REGISTRATION AND PARTICIPATION	DR. SITI FEIRUSZ BINTI AHMAD FESOL
	SITI RAMIZAH JAMA
	SITI NURSYAHIRA ZAINUDIN
	BUSHRA ABDUL HALIM
BIRO MEDAL & CENDERAHATI	PN SYUKURRIAH IDRUS
	SITI NAZIRAH BINTI OMAR
	RAFIDAH ABDUL AZIZ
	MASTURA AYOB
	INTAN LIANA BINTI SUHAIME
	DR NORASHIKIN ADAM
CERTIFICATE	PN ZUHRI ARAFAH BINTI ZULKIFLI
	FAIQAH HAFIDZAH BINTI HALIM
	NORSHAHIDATUL HASANA BINTI ISHAK
	HAZRATI ZAINI
	KHAIRUL NURMAZIANNA ISMAIL
SPONSORSHIP	DR MOHD SYUKRI BIN ABDULLAH
PROGRAM BOOK, ABSTRACT & PUBLICATION	DR MAIMUNAH JOHARI
	PN MAYMUNAH ISMAIL
	PN NOR HALAWAH AHMAD
	PN AZIRA RAHIM
	NORLINDA TENDOT ABU BAKAR
	AFZAN SHAHILLA AMIR HAMZAH
MEDIA & PUBLCITY	DR NOOR AFZALIZA NAZIRA BINTI IBRAHIM
	DR MOHD SUFIEAN BIN HASSAN
	ENCIK KHAIRI BIN KHAIRUDDIN
	DR NUR SHAZANA BINTI ABDUL RANI
	DR SITI NUR IZYANDIYANA BINTI AB HADI
	DR MOHAMAD HAFIFI BIN JAMRI
MEALS ARRAGEMENTS	DR SITI NURUL AKMA BINTI AHMAD
	MOHD SUFIAN AB KADIR
	SITI MARIAM ALI
	ERRATUL SHELA ESHAK
	NUR FAITHZAH JAMIAN

	MUNIRAH BINTI MOHD JIDI
	MASLIZA BINTI MOHD RAZALI
TECHNICAL & VENUE	EN MAZ IZUAN BIN MAZALAN
	AFZAN SAHILLA BINTI MOHD AMIR HAMZAH
	MUHAMMAD FURQAN BIN AZHAR
	KHAIRUL AZHAR BIN LOCHMAN

ABOUT MIIEX'24

MIIEX'24 is an innovation competition annually organised by UiTM Melaka with the intention to bring together ideas and inspiration that could fit in for commercialization needs.

This event creates a platform for researchers to establish networking, partnership and opportunities to collaborate with industries.

OBJECTIVES

1. Encourage and instil 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 skilful 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.

THEME

'EMPOWERMENT OF SPECIAL NEEDS THROUGH INVENTION AND INNOVATION'

INNOVATION, INVENTION, AND DESIGN	
MIIEX'24 ORGANISING COMMITTEE	9
ORAL HISTORY SYSTEM FOR MEMORY MANAGEMENT (OHS3M)	27
ALIMS – ASSETS LOAN AND INVENTORY MANAGEMENT SYSTEM WITH SMS NOTIFICATION	31
“SOCKET LOCK-IT”: TOOTH EXTRACTION SOCKET COMPRESSION DEVICE FOR SPECIAL NEEDS PATIENTS	36
F.O.S MEMBERSHIP SYSTEM ENHANCEMENT USING GEOLOCATION, CHATBOT WITH USER PREFERENCES	40
CDL-CQI TEMPLATE	44
AIDQR FINANCIAL BRIDGE FOR SPECIAL NEEDS	49
SMART RAKE ROLLER	53
INSUREQUEST: THE INSURANCE ADVENTURE	56
MONEYEASE APP	60
FLEXIWHEEL	64
VIRTUAL REALITY TOOL FOR TEACHING AND LEARNING HUMAN ANATOMY IN SECONDARY SCHOOL	68
ENHANCING CHEMISTRY LEARNING FOR SECONDARY SCHOOLS STUDENTS USING VIRTUAL REALITY	73

THE SUPPORT BOARD: TREATMENT WITHOUT TRANSFER	78
BLIND BANKER APPS	81
GEST2TALK (G2T) APPLICATION	84
ARTHRIEASE KIT	90
REVERZ PRINTER	94
EMPOWERING YOUR FINANCIAL WITH ULTIMATE FINANCIAL COMPANION	98
MY INNER VOICE: AN INNOVATION OF SELF-EXPRESSION	103
WITH THE COMMUNICATION BOOK	103
MIND MAP: INTERROGATIVE WORDS IN MANDARIN	107
AROMAZEN HANDKERCHIEF FOR INDIVIDUALS WITH AUTISM	111
AUTIEASE KIT ULTIMATE COMFORT AND CONVENIENCE SOLUTION	115
MONTESSORI SENSORY SOFTBOOK: ENGAGING EDUCATION FOR CHILDREN WITH AUTISM	119
BRAILLEBIND	122
HEAR TO SEE GLASSES	125
SMART BLIND-PEDESTRIAN TRAFFIC LIGHT AND SMART CANE WITH EARPIECE	128
MONEY BRAILLE STAMPING	130

EMPOWER SHOP INNOVATION	134
SENSORYSERENITY BOTTLE	138
SMART UMBRELLA	147
TAXQUEST	149
SMART MUG	153
FINDR	156
IFROST SMART REFRIGERATOR	159
A SMART CANE INTEGRATED WITH ARTIFICIAL INTELLIGENCE (AI) CAPABILITIES	164
ATTACHABLE ROOF FOR WHEELCHAIR	166
3 IN 1 UTENSILS	170
STUDYMATE: UITM STUDENT TIME MANAGEMENT SYSTEM USING WEB-SCRAPING AND TELEGRAM BOT API WITH AUTOMATIC NOTIFICATION REMINDER	173
EMPOWERING AUTISTIC TALENTS	182
DISABANK IMOBILE	187
COMFORTSTEP DIABETIC FOOTWEAR	192
SNUGGLETRON: A COMPANION ROBOT	194
BUDGETBUDDY: SAVE EASILY, SPEND WISELY	198

EZTOTE BAG	201
BUDGET BUDDY	205
SIGHTLESS SHOP	208
FINWEAR TRANSACTION BRACELET	214
FINWEAR TRANSACTION BRACELET	216
MONEY BUDDY	221
UNIVERSAL GAME CARDS (INVESTMENT EDITION)	225
SMART PEN FOR INTELLECTUAL DISABILITIES	229
GLITZGLAM MAKEUP BRUSH	231
INVENTNIC (INVESTMENT APPLICATION FOR VISUAL IMPAIRMENT)	234
THE SMART BLIND CANE STICK	237
TECHNOLOGICAL INNOVATION:	240
THE FUTURE AND CHALLENGES IN MALAYSIA CONTEXT	240
CHROMATONE	245
SMART MEDICINE DISPENSER	246
HELPHUB	250

CREATING BRIDGES FOR OPPORTUNITIES: DEVELOPING A UNIQUEHIRE.COM FOR PEOPLE WITH DISABILITIES	254
EMPOWER ABILITY APPLICATION	258
3D FLEXY LEG” SILICONE-BASED PROSTHETIC LEG	259
SMART TECH	263
IHEADEASE: INNOVATIVE HEAD IMMOBILISATION DEVICE FOR SPECIAL CARE PATIENTS DURING DENTAL PROCEDURES	266
CHILLI ROW COLLECTOR	270
TRI-WHEEL NAVIGATOR: INNOVATIVE LUGGAGE WITH TRIANGULAR WHEELS	273
PHINESTIC LEARNING	276
SMART ASSISTIVE WATCH FOR THE VISUALLY IMPAIRED	280
OPTICFIN: BANKING SOFTWARE FOR VISUALLY IMPAIRED PEOPLE	283
TWIST N’ TASTE 2-IN-1 BOTTLE	286
THE JIGGLE PILLOW	290
VISIONARY VAULT: REVOLUTIONIZING SOLUTION FOR DISABLE COMMUNITY	292
SAFETY BUBBLY JACKET	300
ADJUSTMENT ON EC METER FOR DISABLE PEOPLE	303

EARBUD TECHNOLOGY FOR THE BLIND	306
LEMMEGUIDE	310
SIGNSYNC	313
ICHAIR - THE NEXT GENERATION IN INTELLIGENT WHEELCHAIR MOBILITY	316
PORTABLE ARMCHAIR CANE	320
SMART INTELLIBOARD	324
MASSAGER WHEELCHAIR	327
VOXTECH: EMPOWERING FINTECH ACCESSIBILITY FOR VISUALLY IMPAIRED	331
TRANSFORMING CORN COBS INTO RENEWABLE COAL: A SUSTAINABLE ALTERNATIVE TO FOSSIL FUELS	336
MULTIPURPOSE KITCHEN TOOL	342
DIGITAL CHOPBOARD	347
GRABBYBITEZ	351
SEEINGSOR SYSTEM DETECTION	354
SAVVY COINS: PERSONAL FORCED SAVINGS TRACKER MOBILE APPLICATIONS	356
CAREMALL	360
TALK TO ME (TTM) ASSISTIVE MACHINE	364

EARSENSE: ENHANCING COMMUNICATION FOR THE DEAF THROUGH REAL-TIME TRANSLATION	367
REACHER GRABBER TOOL	371
FAIRY LIGHT COLOR	372
MYRELIEFF	376
FIN-ACCESS	377
SMART PILL BOX ORGANIZER	380
INNOVATION IN MAKEUP APPLICATOR FOR HAND DISABILITY PEOPLE	385
APEX SOLAR FAN	389
TALKBACK BALANCE CHECKER	394
THE SOSECURE BLIND-FOLD CANE	396
SIGNAVERSE	402
DISABILITY PEOPLE: SILANG TRANSLATOR	405
KINDLELIT: ADVANCING DYSLEXIA ACCESSIBILITY ON AMAZON KINDLE	408
SHOEDRY	411
BUDGETBUDDY BASED	416
BLYNUS VISION	420

VOICEEASE FOR PEOPLE WITH VISION IMPAIRMENT DISABILITIES	423
CAREABILITY	426
INNOVATIVE PITCHER PLANT TEA SET: A VERSATILE TABLE DECORATION WITH MULTIPLE COMPARTMENTS	430
HELPOK: HELP THOSE WHO NEED	433
REVOLUTIONIZING ADHD CARE: INTRODUCING FOCUS FLOW SMARTWATCH FOR ENHANCED DISABILITY SUPPORT	436
ZENSPHERE	441
CLOTHES BUTTON MAGNETIC	443
ADAPT TO EWHEEL SMART WHEELCHAIR	446
DISABILITY PEOPLE: ABILITYFIN	447
CAPABLEINVEST	450
MULTIFUNCTIONAL HEARING AIDS (AIDEWAY)	454
VTIFY APPLICATION	455
ONE STOP MAINTENANCE APP	458
BLIND STICK TECH (BST)	462
NAVICANE	466

THE ASSIST TOILET WHEELCHAIR	470
SOUND SENTRY	474
JAYJAY COFFEE	476
*BLOW WAVE PRO	480
BRIDGING THE GAP: TECHNOLOGICAL INNOVATIONS AND SUSTAINABILITY TOWARDS TRANSFORMING DISABILITY PRODUCTS	483
LAUNDRY SERVICES FOR PEOPLE WITH DISABILITIES	488
BUDGETBEE	491
VOICESTICK	494
SUPPER SOLE	495
EDUWISE PEN RECORDER	498
BHELP: THE 2-IN-1 BED AND WHEELCHAIR PROJECT	502
I-M-A-N APPROACH:	507
A CREATIVE METHOD TO TEACH AUTISTIC CHILDREN VERBAL COMMUNICATION	507
MF UMBRELLA	511
TEDDY GUARDIAN	514
SKIPPERS	519

PROSAFE: GUARDIAN GLOVE	523
ABLE APP	528
MONEY MASTER CALCULATOR: FINANCIAL CALCULATOR FOR BLIND OR VISION-IMPAIRED USERS	529
BANTU OKU APPLICATIONS	532
BOOKARMOR: A SUSTAINABLE SOLUTION FOR TEXTBOOKS LONGEVITY AND SUSTAINABILITY	535
MAGIC LIGHTERS	540
SKYSHIELD UMBRELLA	544
GLAMMIX	547
PAWTRACK HEALTH-GUARD	550
MONEYMINGLE: BRIDGING FINANCIAL LITERACY AND EXPERIENCE THROUGH INTERACTIVE LOAN EDUCATION APP	555
HOUSEHOLD LIFESTYLE : QUARTERCUT	562
WHEELCHAIR FOLDABLE TABLE	565
NAVIGATOR CANE	567
SILENT SPEAK CONNECT: YOUR BRIDGE IN BETTER HEARING	571
FINANCE BOARD GAME: CRITICAL THINKING FOR THE BLIND	575

ADVANCE SPEECH RECOGNITION	579
SENSORY KIT BOX	582
BRAILLE TABLET	585
BRAILLEFRESH: A BATHING INNOVATION ACCESSIBLE TO ALL	589
AIR UP FLAVOURED WATER BOTTLE	592
MYRELIEFF	597
ADAPTOWHEEL SMART WHEELCHAIR	598
MULTIFUNCTIONAL HEARING AIDS (AIDEWAY)	599
VOICESTICK	600
ABLE APP	601
GRABBYBITEZ	602
OKU SMART PARKING ASSISTANT	608
OBSTACLESENSE	612
VOLUNTEER FINDER APPLICATION	615
BAID: SMART HEARING AID WRISTBAND	618
MAKEUP BRUSH DRYER	622

UNIVERSE RING: EMPOWERING READING ACCESSIBILITY FOR PEOPLE WITH DISABILITIES	626
NEW PRODUCT DEVELOPMENT	630
SMART BRACELET (I-FIT)	631
COZYWRAP: TO SECURE AND PROTECT PATIENTS IN A COMFORTING WAY	634
COZEES, THE SELF-HEATING BLANKET	638
DYSCARD - DYSLEXIA-FRIENDLY CARD GAME	641
THE SPECTACLE SENSOR	644
LEXY LENSE	647
SNEAKSENSE SENSORY SHOE	650
CHROMAKIDS: KIDS COLOR BLINDNESS SPECTACLES	654
THE INTERACTIVE WEIGHTED LAP PAD WITH EMOTIONAL FEEDBACK	660
AI SMART RECITING BRAILLE QURAN PEN	662
QURANIC PILLOW	666
VISION VESSEL SMART BOTTLE	669
LAUNDRY BUTLER BY TIDYTOOLS	673
SMART WHEELCHAIR	676

DEAF PERSON GLASSES: MOUTH MOVEMENT TO SIGN LANGUAGE TRANSLATION	681
IDRINK COMPANY	683
SMART LASER FOR BLIND PEOPLE	686
INDIGO: SHADE OF DESIGN	688
SMART WHEELCHAIR	692
PORTABLE BLIND CANE	693
CARING-BASED EDUCATION PROGRAM MODULE FOR CRITICAL CARE NURSES	694
SPICES RACK WITH BRAILLE	697
MULTIFUNCTIONAL CLEANING STICK	702
COLOR-READING GLASSES	705
WHEELY BLISS	708
THE TALKING BUTTON	711
SINGGEST-EMPOWERING THE DEAF AND BLIND COMMUNITY THROUGH GESTURE-CONTROLLED ACCESSIBILITY	714
FAIT: FINANCIAL AUTISM INSIGHT TOOL	718
BRAILLE SMART GLOVE	722
SEAT AND TRACK CART	726

INTELLICANE (SMARTCANE)	729
CYBERWHEEL PRO BY INTELLIGUIDE COMPANY	733
BRAILLET TOUCH PRICEMARKERS	736
IMPROVISING FOGGING MACHINE DESIGN KEY CHARACTERISTIC THROUGH FUNDAMENTAL PERFORMANCES	741
BORNEAN CUISINE RESTAURANT	747
VOICE B	751
THE MULTIFUNCTIONAL BUZZER WATCH: A SOLUTION FOR DEAF PEOPLE	756
SEGRE-BAG: REVOLUTIONIZING WASTE MANAGEMENT THROUGH INNOVATIVE SEGREGATION	760
ACTIVRAY ADVANCE SKELETON	764
TECHNOLOGY INNOVATION SMART JEWELRY, LUMIÉRE ARMILLA	767
SANDAL MOP	770
BLINDGUIDE: MULTIPURPOSE PORTABLE STICK	774
SENSE SPEND: AI-ENHANCED FINANCIAL APPS FOR INDIVIDUALS WITH VISUAL IMPAIRMENTS	777
AUTO-UPDATE CONTAINER LIDS SCANNER WITH EXPIRATION DATE DISPLAY	786

SPREADING THE KNOWLEDGE: APPROACHING THE OBLIVIOUS ABOUT HIGH SENSORY INPUTS	791
EZPASAR	795
TOUCHSENSE GLOVE	798
CARE WATCH	800
EZPLANABILITY	802
COZY CUP 312 CAFE	806
AUTISM SPECIALIZED BAND	809
MULTIPURPOSE UTENSIL	814
COMMUNITY AWARENESS TOWARDS DISABLED PERSON: OVERVIEW AT MALAYSIA CHAPTER	816
RESQALERT	820
U&I	824
TRANSVISION: YOUR GLOBAL LENS	825
NOUR TRAVEL & TOURS	829
SMARTREACH	833
PMAS CARE : PARENTAL MONITORING AND SUPERVISION CARE	837

BODY N' MIND SPA	841
HUGGING CHAIR FOR AUTISM	845
OLA KINO - AN EMOTIONAL ASSISTANT APPLICATION	848
MASTER BRACELET	851
SIGNSENSE	853
SMATTRESS	855
MATH MIND MASTERKIT: REVOLUTIONIZING FINANCIAL EDUCATION FOR YOUNG MINDS THROUGH GAMIFIED LEARNING	859
CAMPUSHARE	864
ADAPTAWEAR CO.	867
EQUALEASE FINANCIAL SERVICES	871
DUMPSTERDOT.CO - BEYOND TOUCH: MOTION SENSOR TRASH CANS PWD-FRIENDLY WASTE MANAGEMENT INNOVATIONS	874
BUZZALERT	877
DIGITAL EYES SMART GLASSES TECHNOLOGY	880
CHILDREN EDUCATION CENTER	884
LEXIPLAY DYSLEXIA LEARNING ADVENTURES	887

SIGN TECH PRO	891
CLEANING SERVICES FOR PEOPLE WITH DISABILITIES	894
CAREWHEEL	897
EASYMOTION	901
NOURISHVITAL	904
BLINDCARE .JR	908
CARING CLEAN	911
COOKIESTER	914
SMARTCHEF PRO STOVE	918
VERSASTEADY WAND	921
ADHD FRIENDLY TOYS BY CALMMIND CREATION.CO	924
BRILLE WATCH	928
JUNGLE MATCH	930
JÆPPY: THE MULTIPURPOSE JACKET	934
SMART DESK LAMP	938
ROAD CITY EXPRESS	941
PRIMEXWHEELS	945

SMART FRIDGE	948
PORTABLE THERMOS WATER HEATER	952
AUTOMATIC BABY AND PET FENCE	956
NEW TECHNOLOGY WHITE STICK	960
MOBILITY SHOWER SOLUTION FOR PEOPLE WITH DISABILITIES	963
ANGEL WHEELS	968
ACCESSIBLE WEALTH: PERSONALIZED FINANCE FOR EVERY ABILITY	972
EMO PET (PERSONALIZED VIRTUAL ASSISTANTS WITH EMOTIONAL INTELLIGENCE)	975
COOLFLOW SHIRT	979
MAYFAA TOTE BAG	982
SOLARSPRINT POWER BANK	986
HISTORIA INDONESIA WITH RPG GAME	990
FINEASE	994
EZCOMB	998
THE SENSESTICK GLOVES	1002
MAGIC WAND	1004
“VTOKU”	1007

HIGH-TECH HEXAGON FRIDGE	1012
MEMORA FRAME: REIMAGINE YOUR WALLS WITH A TOUCH OF TECHNOLOGY	1016
CAMOCULAR	1020
MATHSLEXIA	1024
“WHEELY: ADVANCE TECHNOLOGY ON TRADITIONAL WHEELCHAIR”	1028
SENSA STRAP: ENHANCING SAFETY FOR VISUALLY IMPAIRED	1032
DYXTAB: TRANSFORMING LEARNING FOR DYSLEXIC CHILDREN	1035
EZ PRINT (PRINTING VENDING MACHINE)	1039
PREP PANTRY	1043
WHEELCHAIR SECUREMENT SYSTEMS	1047
GOBRELLA	1050
SIPPY PRESS - LIFESTYLE	1054
NAVIGATE AID STICK	1058
LUMINA FAN	1062
BRISK-WALK TROLLEY ASSISTANCE: AN INNOVATIVE APPROACH FOR OBESITY RECOVERY	1070
PORTABLE MEDKIT	1074

TIDYKIT	1077
BRAINWAVE: WHERE MAGIC MEETS NOTES - THE SMART NOTEBOOK WONDER	1081
TOURISM PLANNER APPLICATION	1084
SLEEPING HEADBAND	1088
TACTIBANCA: AUTOMATED TELLER MACHINE (ATM) FOR VISUALLY IMPAIRED INDIVIDUALS	1092
GINGER SURVIVOR	1096
BRAILLEPHABET PUZZLE BOOK	1098
HELMET WITH INTEGRATED AUGMENTED REALITY DISPLAY	1103
AUDIO VIEW	1106
BLUSCENT AIR CONDITIONER	1110
MULTIPURPOSE IRON BOARD	1114
LEAD	1117
MOMMY MAGIC	1121
ECHO CLASP	1125
BOTTOMUPZ: STUDENT-FRIENDLY SMART BOTTLE WITH TEMPERATURE DISPLAY	1128
FOLDABLE STICK WITH TUMBLER HOLDER	1131

SHOE CABINET WITH AUTOMATIC ODOR CONTROL	1134
AAIM SMART PILLOW	1138
BALBAT BEAUTY.CO 7IN1 MAKEUP PEN.	1141
VISION TECH	1145
SMART PORTABLE WARDROBE	1148
MOBILE EASE ONE	1150
BRAILLE MENU	1153
I-DETECTOR	1157
PENDIVE	1161
SMART SHOE FOR BLIND PERSON	1166
BRAILLE CHECKERS: AN INNOVATIVE BOARD GAME DESIGNED FOR THE VISUALLY IMPAIRED, ENSURING FUN AND ACCESSIBILITY	1169
RAIN KIT	1172
MINDMINGLE: AN AI STUDY APP	1175
“WRITING MOUSE”	1178
MASSAGE CHAIR FOR PUBLIC USERS AND PERSONS WITH DISABILITIES	1181
SMART SPECTACLES	1185

POCKET IRON	1188
SMART ASSISTIVE WATCH	1192
ZEMAI'S ADJUSTABLE UMRAH CLOTHES	1195
SILENTVUE: ENHANCING THE WORLD FOR THE DEAF	1198
MAGNETOP	1203
JUTAWAN EXPRESS	1206
COSETTE BEAUTY & WELLNESS KIT *	1211
HIBISCUS INTELLIGENT AGING MASKER	1214
HIGH +	1216
SMART WINDOW	1219
APPLICATION FOR VISUALLY IMPAIRED	1223
SMART DISPENSER DUSTBIN	1226
EMERGENCY 2-IN-1 CLOTH_HIJAB SCAFT ZIPPER	1229
EMPOWERING AUTISTIC READERS: HARNESSING THE POWER OF VISUALS IN BOOKS	1234
CLOTHMATE SOLAR SPINNER	1237
FROZSCAN	1240

TEH TARIK MAHMUDI: MAXIMIZING COGNITIVE BENEFITS OF MORINGA OLEIFERA, PLUKENETIA VOLUBILIS, AND ANDROGRAPHIS PANICULATA VIA CO-ENCAPSULATION TECHNIQUE.	1245
KOPI ALA KAZIM: <i>MOMORDICA CHARANTIA</i>'S EXTRACTION OPTIMIZATION	1251
TEENYMOUTH: AN AT-HOME MOUTH PROP TO AID IN ORAL HYGIENE CARE FOR PERSONS WITH SPECIAL NEEDS	1256
FROSTBITE : A CHILLING TREAT	1260
DYSGRAPHIA SEVERITY CLASSIFICATION USING SUPPORT VECTOR MACHINE (SVM) BASED ON AUTOMATED HANDWRITING IMAGE FEATURE EXTRACTION	1263
CELESTIAL (SUN CHARGER SLING BAG)	1268
THE LEVEL OF AWARENESS ON MENTAL HEALTH AND ITS IMPACT ON TIKTOK USERS	1272
AUTOMATIC DUO FOOD STIRRER	1275
WATER FILTER IMPLEMENTATION CAGE: MODULE OF CLEAN WATER AND AWARENESS FOR INDIGENOUS PEOPLE (ABL MODULE)	1278
GARDBOT : OUTDOOR VACUUM	1281
SENSORY STICK FOR VISUALLY IMPAIRED	1283
BUSINESS MODEL INNOVATION: STATIONERY VENDING MACHINE (SVM)	1286
SPECIALIST BABER	1289

THE LEVEL OF OF HEALTHCARE EDUCATION EFFECTIVENESS ON TIKTOK	1293
THE ACCEPTANCE OF TIKTOK AS A NEW LEARNING PLATFORM	1301
SMARTSNACK	1304
GARDENING HEDGE SHEARS	1307
WHEEL HOES	1311
TASBIH BRAILLE	1316
MYUTQH	1321
THE USAGE OF CHATGPT AS AN ALTERNATIVE WAY OF LEARNING	1325
THE LEVEL OF AWARENESS TOWARDS POSTPARTUM DISEASE IN MALAYSIA	1328
DEEP LEARNING BASED TRANSLATOR SYSTEM OF DYNAMIC SIGN LANGUAGE PATTERN	1331
AGUSTAN SYAMSUDDIN, RIDWANG, MAHARIDA, AHMAD RIJAL	1331
VOCABULARY VERSUS SOCIOCULTURAL KNOWLEDGE IN EFL READING COMPREHENSION	1332
SMARTMED BOX	1333
THE EFFECTIVENESS OF CONTENT CREATORS IN SPREADING POSITIVE INFLUENCE TOWARDS TIKTOK USERS	1338
ICAR4	1341

AUTOMATIC WATERING SYSTEM USING AC DRAIN WATER	1347
STELLAR THE EXPLORER: YOUR HELPFUL COMPANION FOR SMOOTH INTERNATIONAL TRAVEL	1350
JS-TRACKER APP	1353
COUNTBUDDY	1362
STAIR ASSIST CANE LEVEL 5	1367
ITADS: INSTRUCTIONAL DESIGN FRAMEWORK FOR MALAYSIAN HEARING-IMPAIRED STUDENTS' INTERACTIVE MULTIMEDIA TEACHING AIDS	1371
PELAN FATWA: INOVASI WAKAF PAMPASAN KEMATIAN TAKAFUL DI FWD TAKAFUL BERHAD	1381
C.A.R.E	1386
FEELMART	1389
GESTURE-CONTROLLED PROSTHETICS	1392
AQUASTRIDER	1396
PROTOTYPE APPLICATION OF SIGN LANGUAGE HADITH FOR HEARING IMPAIRED: FIVE HADITHS FROM ARBAIN NAWAWIYAH'S BOOK	1401
SPECIAL EDUCATION CONTINUOUS TRAINING UNIVERSAL MODULE (SPECTRUM) TOWARDS AN INCLUSIVE SOCIETY	1404

THE INNOVATION OF 8 NEW BRAILLE CODES FOR MASHAF AL-QURAN BRAILLE MALAYSIA (MQBM)	1407
IN SIGHT ROLL	1411
FONT KOD TANGAN QURAN (KTQ)	1415
<i>QURAN HAND CODE FONT</i>	1415
INCLUSIVE DESIGN WORKSHOPS: EMPOWERING DESIGNERS AND DEVELOPERS TO CREATE ACCESSIBLE PRODUCTS	1418
OUR BATIK ESTETIKA ISTIMEWA (OBAETIBOX)	1422
PERANTI IQRABRAILLE - KURNIAAN DARIMU	1424
UTILIZATION OF VIDEO ASSETS IN PROMOTING TOURIST DESTINATIONS AND PROCESSED TYPICAL TABAGSEL	1428
SALACHOLESTA (OBAT HERBAL KOLESTROL DARI KULIT SALAK) SEBAGAI UPAYA MENINGKATKAN KESEHATAN DAN PEREKONOMIAN DI KOTA PADANGSIDIMPUAN	1429

ProSafe: Guardian Glove

Nurul Athirah Zamzuri¹, Norfatin Erina Ahmad Termiji², Nur Anis Zulaikha Mohd Jamel Zabidi³, Nur Fadzlina Mohamad Bakri⁴, Anis Batrisya Zin Azman⁵, Siti Aisyah Asrul⁶

^{1, 2, 3} Universiti Teknologi Mara, Melaka, Malaysia.

aisyahasrul@uitm.edu.my

Abstract

An analysis of historical data on violent crime trends in Malaysia from 2006 to 2017 underscores the ongoing importance of proactive measures to address societal challenges related to safety and security. While overall violent crime rates may exhibit a declining trajectory over time, periodic fluctuations, particularly in incidents such as robbery, highlight the dynamic nature of threats and the need for adaptive responses. Another concern highlighted is the underreporting of violent crimes to law enforcement, as evidenced by analyzing ambulance and police records (Alex Sutherland, 2021). Results indicate that a large proportion of violent incidents documented in ambulance records do not appear in police records, suggesting a significant gap in crime reporting. Furthermore, the impact of self-defense training on children's self-control reveals positive effects among those instructed in self-defense concepts, which can improve their ability to defend themselves (Muhammad Nur Alif, 2020). Insight into the factors influencing the decision to purchase self-defense tools, including personal experiences, exposure to media coverage of crime and violence, and cultural norms regarding self-protection, further emphasizes the importance of effective self-defense devices (Borres, R.D, 2023). Considering these insights, the objective of ProSafe: Guardian Gloves is to provide users with a comprehensive and technologically advanced tool for enhancing their personal safety and security. The uniqueness of the gloves, such as LED indicators for signaling help, pepper sprays to stop attackers, a camera for detecting criminal faces, and Bluetooth connectivity to mobile phones, underscores the need for effective self-defense devices, particularly for women which in the article, an audio-emitting device is described as being positioned on the top of the hand, featuring a built-in trigger mechanism. This device aims to confuse the potential attackers while simultaneously alerting

others. (Ahvelahti, 2021). Self-defense, as a multidimensional notion, encompasses various methods and techniques for protecting oneself from danger.

Keywords: Self defense, Ergonomic Design , User Friendly , Malaysia

1. INTRODUCTION

Crime remains a constant worry in our society, particularly for vulnerable groups such as women and children who often feel powerless against potential dangers. Nevertheless, the widespread accessibility and adoption of the ProSafe Guardian Glove present a hopeful resolution to this issue. By granting individuals the means to safeguard themselves, these devices not only deter potential wrongdoers but also actively contribute to crime prevention. A notable advantage of the ProSafe Guardian Glove is its capacity to foster confidence and empowerment in users. Equipped with features like pepper spray, a motion detector, and a camera, these gloves offer individuals a practical way to defend themselves in intimidating scenarios, alleviating feelings of vulnerability and fear. By arming themselves with both the glove and the necessary knowledge for self-protection, individuals can traverse their surroundings with increased certainty, reassured by their ability to address potential threats effectively.

It is imperative for children to learn the fundamental skills of self-defense. It falls upon teachers, parents, and the broader community to impart an understanding of self-defense concepts, as children may encounter situations that threaten their safety and that of others (Alif, M. N., Muhtar, T., & Fauzi, R. (2020, January 1). Children need to develop the skills to identify dangerous situations and handle them effectively. By learning and mastering self-defense techniques, children can enhance their self-confidence (Alif, M. N., et al (2020, January 1). This confidence stems from their ability to set goals and strategize on how to achieve them, fostering a sense of empowerment and readiness for future challenges.

This article shares stats about violent crimes in Malaysia from 2006 to 2017, totaling 330,395 incidents in 12 years (Hashom M.H., Khan, H. O., Hamzah, H. H., Othman, M. F., Nelson, B. R., Chambers, G. K., Edinur, H. A., Abdullah, M. T., & Rasudin, N. S. (2019, October 1)). The types of violent crimes covered include murder, rape, gang robbery, robbery, and cases of voluntarily causing hurt. They are reported for all 13 states of Malaysia, including Sabah and Sarawak in Borneo, and the federal territory of Kuala Lumpur (Hashom.M.H et.al (2019, October

1)). Generally, there is a decreasing trend observed in violent crimes across Malaysia during the specified period. However, armed gang robbery and armed robbery exhibit fluctuating patterns between 2008 and 2011, with a similar trend noted for unarmed gang robbery from 2008 to 2010 (Hashom.M.H et.al (2019, October 1)).

2. OBJECTIVE

The objective of the ProSafe: Guardian Glove extends beyond its primary purpose of ensuring the protection of student and women from potential harm and danger. This glove is intended to provide users with a comprehensive and technologically advanced tool for enhancing their personal safety and security. By incorporating cutting-edge technologies into a wearable device, this glove aims to offer a holistic approach to self-defense, encompassing both proactive and reactive tactics. By harnessing contemporary technological capabilities, this glove endeavors to empower users to navigate their environments with greater confidence, while also providing crucial evidence and assistance in the event of an emergency.

3. NOVELTY & INVENTIVENESS

The Prosafe: Guardian Glove is a versatile self-defense glove that seamlessly integrates protection with everyday functionality. Boasting unique defensive mechanisms like reinforced knuckles and impact-resistant materials, this glove offers robust defense while maintaining comfort and natural hand movements. Its ergonomic design ensures a snug fit, while its discreet appearance allows for quick access to its defensive elements. FNA Enterprise offers comprehensive training and education resources to ensure users can safely utilize the glove. Moreover, the glove complies with all relevant laws and regulations. Equipped with advanced technology, including built-in tracking capabilities and emergency alert systems, it enables swift responses in times of distress.

4. PRACTICALITY & USEFULNESS

The Prosafe: Guardian Glove seamlessly combines cutting-edge features with high-quality materials to optimize personal safety. Featuring premium cotton, lycra, and microfiber, it ensures a comfortable and secure fit while providing durability. Activate advanced functionalities like

the built-in camera, sensors, and AI capabilities to detect and respond to threats efficiently. The discreet design allows for effortless concealment, while the innovative refill system enables convenient replenishment of pepper spray. LED indicators signal normal conditions, potential threats, and emergencies. Utilize defensive mechanisms like reinforced knuckles when needed, and leverage built-in tracking and emergency alert systems in emergencies. Regular practice fosters proficiency and confidence, enhancing overall safety across various environments.

5. CONCLUSION

Self-defense is a multidimensional notion that includes numerous methods, techniques and equipment for protecting oneself from any damage or danger. When confronted with physical threats, abuse, or other types of violences, individuals can adopt a number of techniques or methods to increase their safety and well-being. We chose this product because the Prosafe: Guardian Gloves offers users a comprehensive tool for enhancing personal safety and security. By incorporating advanced technologies which is we use Artificial Intelligence (AI) software and features of camera and Bluetooth. Additionally, our Prosafe: Guardian Gloves are distinguished by their carefully selected materials alongside their innovative design. Made from a combination of premium synthetic fiber that includes cotton, microfiber and Lycra. Whether our target customer is student or women that are concerned about their safety, this glove can offer versatility and reliability to meet their needs. We chose materials that are highly resistant to damage or tearing and stretchy fabric that can fit any hand size. Finally, we aspire for our product to assist every individual in safeguarding themselves from any potential harm.

REFERENCES

- Alif, M. N., Muhtar, T., & Fauzi, R. (2020, January 1). Practical Self-Defense Program for Children Using 4P (Pray, Prediction, Preventive, and Protective) Concept: An Effort to Improve Self-Control. Proceedings of the 4th International Conference on Sport Science, Health, and Physical Education (ICSSHPE 2019).
- Ahvenlahti, N. (2021) Multi-functional self-defence device: A study on the desired functions and the construction of a device capable of providing several means of self-defence, DIVA.
- Borres, R.D. et al. (2023) Analysis of factors affecting purchase of self-defense tools among

women: A machine learning ensemble approach, MDPI.

Hakim, H. M., Khan, H. O., Hamzah, H. H., Othman, M. F., Nelson, B. R., Chambers, G. K., Edinur, H. A., Abdullah, M. T., & Rasudin, N. S. (2019, October 1). Violent crime datasets: Incidence and patterns in Malaysia from 2006 to 2017. *Data in Brief*.

Sutherland, A., Strang, L., Štěpánek, M., Giacomantonio, C., Boyle, A., & Strang, H. (2021, April 23). Tracking Violent Crime with Ambulance Data: How Much Crime Goes Uncounted? *Cambridge Journal of Evidence-Based Policing/Cambridge Journal of Evidence-based Policing*.