Final Year Student
Asyraf Zhofran Bin Ismail
Bachelor of Mechanical Engineering Technology (Design and Analysis) with Honours
Faculty of Mechanical and Automotive Engineering Technology
Universiti Malaysia Pahang Al - Sultan Abdullah

asyrafzhofran2002@gmail.com asyrafzhofran +6011-69796240

OBJECTIVE

I am seeking an internship to apply my skills in mechanical design, CAD tools, and structural mechanics. My hands-on experience with a foldable electric scooter project and knowledge of asset reliability practices will allow me to contribute to engineering excellence while gaining valuable industry experience.

EDUCATION

Bachelor of Mechanical Engineering Technology (Design and Analysis)
Current CGPA : 3.05
Universiti Malaysia Pahang Al-Sultan Abdullah
Oct 2023 - *Current*

Diploma of Mechanical Engineering
Overall CGPA : 3.03
Universiti Malaysia Pahang Al-Sultan Abdullah
Oct 2020 - Jan 2023

RELEVANT SKILLS

CATIA V5
level: Beginner
experience: 1 year

SOLIDWORKS
level: Intermediate
experience: 4 Years

AUTODESK INVENTOR
level: Intermediate
experience: 2 years

FUSION 360
level: Intermediate
experience: 2 years

ANSYS
level: Beginner
experience: 1 year

AUTOCAD
level: Intermidiate
experience: 4 years

MICROSOFT
level: Intermediate
experience: 7 years

LANGUAGE PROFICIENCY

- Malay
- English
- Arabic

WORK EXPERIENCE

1. Assistant Qc Operator, Hicom Automotive Manufactures :
Mac 2023 - September 2023
   - Conducted visual and dimensional inspection of automotive components to ensure compliance with quality standards and specifications.
   - Supported in-process and final inspections along production lines, ensuring timely identification and reporting of quality issues.
   - Maintained accurate inspection records and assisted in preparing daily QC reports for internal audits.

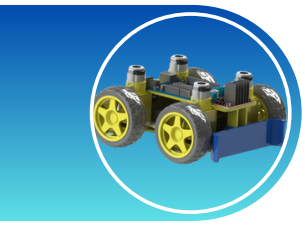
2. Final Line Operator, Hicom Automotive Manufactures :
Oct 2022 - Mac 2023
   - Performed final assembly tasks and inspections on automotive vehicles before delivery to ensure they met quality and safety standards.
   - Conducted functional checks on vehicle systems (e.g., electrical, mechanical, door mechanisms) to confirm full operability.
   - Maintained high productivity and adherence to production schedules while upholding safety and 5S workplace standards.

Hicom Automotive Manufactures Sdn. Bhd
Qc Operator

AWARDS AND HONOURS

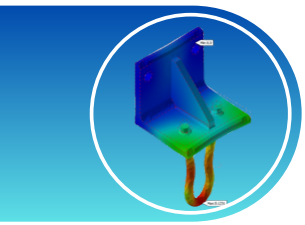
- Represented UMPSA in a cross-cultural academic program focused on mechanical and mechatronic engineering technologies in Yogyakarta, Indonesia.
- Represented Pahang in the Malaysia Future Leader School.
- Successfully passed the Quality Control Competency Examination at Universitas Ahmad Dahlan, Yogyakarta, Indonesia, representing the Faculty of Mechanical and Automotive Engineering Technology (FTKMA), Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA).
- Earned Quarter Final Slot in FTKMA Soccer Robot Tournament in January 2024.
- Dermasiswa *Majlis Ugama Islam Pahang*.
- Secured 1st place in Design Competition for Load Mover in January 2024.
- Represented UMPSA as a committee member for the Konvensyen Kebangsaan Mahasiswa Kejuruteraan at USM.
- Represented Parlimen Mahasiswa UMPSA in national-level student leadership engagements.
- Best Moderator Award, University Leader Summit (2025).
- Best proposal in Parlimen Mahasiswa UMPSA.
- Training for Short Course Basic Lifting and Rigging.
- Represented Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA) in cross-country cycling at the SUKIPT Games.

DESIGN PORTFOLIO



UNO ROBOT 1ST PROTOTYPE: SOCCER ROBOT
Designed and developed the first prototype of a UNO-based soccer robot with a focus on optimizing chassis dimensions and component placement within limited space constraints. Conducted finite element analysis (FEA) on the chassis and ball holder to evaluate displacement and stress under loading conditions, ensuring mechanical reliability.
project duration: 14 weeks

UNO ROBOT
Successfully designed and assembled the final prototype of the UNO Robot, achieving a compact, robust, and efficient structure tailored for soccer-playing applications. Refined the 3D model for better assembly, modularity, and maintenance, using precise part integration and streamlined component layout. Enhanced Arduino-based electronic control, ensuring responsive movement and reliable communication between sensors, motors, and control systems.
project duration: 14 weeks



WELDED STEEL HANGER
Performed finite element analysis (FEA) using Autodesk Inventor Nastran to determine von Mises stress, displacement, and safety factors for a welded steel hanger under a 6000 N load.
project duration: 4 weeks

THE FOLDABLE ELECTRIC SCOOTER
Designed and developed a foldable electric scooter focusing on portability, lightweight construction, and ease of use for urban commuting. Engineered a robust folding mechanism to ensure structural strength while allowing quick and safe folding/unfolding operations. Integrated an efficient electric drive system, including motor, battery, and controller, with a focus on maximizing travel range and speed. Developed detailed 3D CAD models and technical documentation to support prototyping and future manufacturing processes.
project duration: 14 weeks

CO-CURRICULAR ACTIVITIES

Secretary of UMP Cycling Team, October 2023 - July 2024

- Managed all administrative and documentation tasks for the cycling team, including meeting minutes, official correspondence, and event records.
- Coordinated internal communication between members, committee, and university management.
- Handled registration processes for external cycling events and ensured compliance with university sports regulations.

Sports Executive of MECHAPRO Club, October 2023 - July 2024

- Planned, organized, and coordinated sports-related activities and tournaments for club members, promoting physical fitness and team spirit.Coordinated internal communication between members, committee, and university management.
- Managed participation of members in inter-faculty and inter-university sports competitions, especially mechanical engineering-related games.

President of MECHAPRO Club, October 2024 - Present

- Represented the club at university and external events, strengthening collaborations with industry partners and other organizations.
- Managed the overall administration, including meetings, financial oversight, and reporting to the Faculty of Mechanical and Automotive Engineering Technology (FTKMA).

REFEREES

Ts. DR. MOHAMAD ZAIRI BIN BAHAROM
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Universiti Malaysia Pahang Al - Sultan Abdullah
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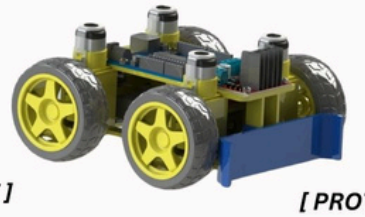
BTD2213 PRODUCT DEVELOPMENT 3

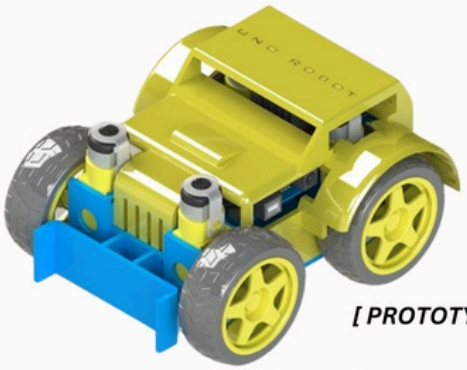
UNO ROBOT

DESIGN EVOLUTION

[DESIGN CONCEPT]



[PROTOTYPE 1]



[PROTOTYPE 2]

PROBLEM STATEMENTS

- Difficult to design within the specified dimensions
- limited space available on chassis

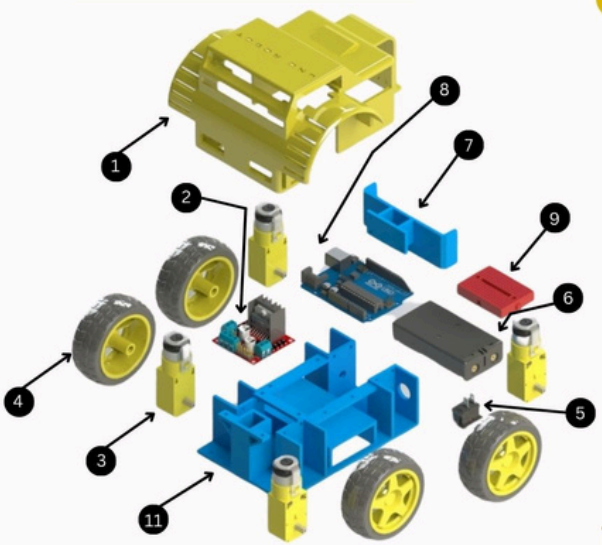
OBJECTIVES

- To design a soccer robot
- To make a fabrication of soccer robot
- To develop a robot that can be operated using arduino programming

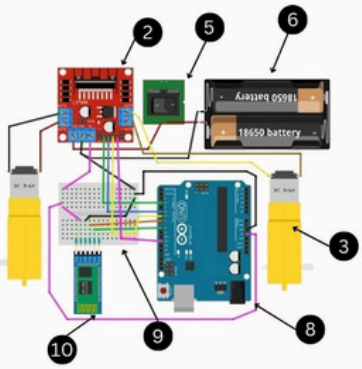
SCOPES

- Maximum dimensions of 180mm (L) x 150mm (W) x 150mm (H)
- Not surpass weight of 800g
- Ball-holding capacity limited to 30% at maximum

3D EXPLODED VIEW



ELECTRONIC CIRCUIT



BILL OF MATERIALS

No.	Part Name	Unit Cost (RM)	Prototype 1		Prototype 2	
			Qty	Total (RM)	Qty	Total (RM)
1	Cover	0.30/g	0	0	73g	21.90
2	Motor Driver	5.00/set	1	5.00	1	5.00
3	DC Motor	2.90/pc	4	11.60	4	11.60
4	Tire	1.50/pc	4	6.00	4	6.00
5	Rocker Switch	0.80/pc	1	0.80	1	0.80
6	Battery Socket	1.50/pc	1	1.50	1	1.50
7	Ball Holder	0.30/g	45g	13.50	41g	12.30
8	Arduino Uno	39.90/set	1	39.90	1	39.90
9	Breadboard	0.85/pc	1	0.85	1	0.85
10	Bluetooth Model	13.90/set	1	13.90	1	13.90
11	Chassis	0.30/g	85g	25.50	95g	28.50
Total				RM118.55	14	RM121.55
Total for 2 Units				RM237.10	14	RM243.10

TRIZ ANALYSIS

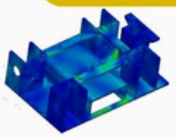
INVENTIVE PRINCIPLE #39
Inert Atmosphere

Add another layer on top of the chassis

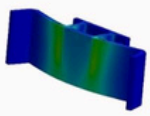
INVENTIVE PRINCIPLE #16
Partial or Excessive Action

Arrange components on both layers

FEA SIMULATION



CHASSIS
Load: 3 N
Displacement: 0.109mm
Stress: 6.084 N/m2



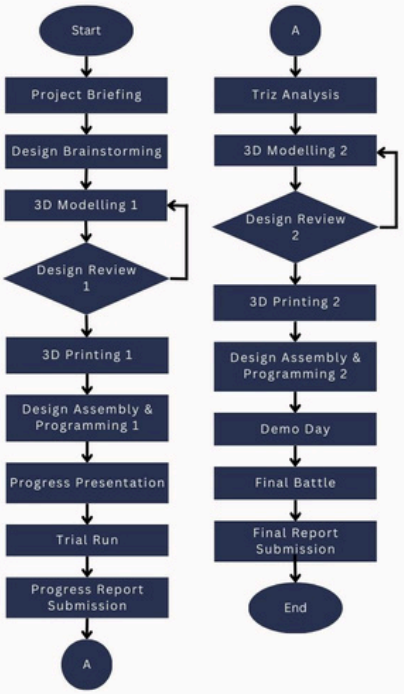
BALL HOLDER
Load: 3 N
Displacement: 0.091mm
Stress: 1.732 N/m2

PROGRESS

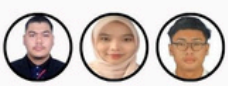
GANTT CHART

TASK	PIC	PROGRESS	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14
Project Briefing and Design Brainstorming	All	Plan														
		Actual														
Design Concept and 3D Modelling 1	All	Plan														
		Actual														
Design Review 1	All	Plan														
		Actual														
3D Printing 1	Asyraf	Plan														
		Actual														
Design Assembly and Programming 1	Hafiz & Asyikin	Plan														
		Actual														
Progress Presentation	All	Plan														
		Actual														
Trial Run	All	Plan														
		Actual														
Progress Report Submission	Asyraf	Plan														
		Actual														
Triz Analysis	Asyikin	Plan														
		Actual														
3D Modelling 2	Hafiz	Plan														
		Actual														
Design Review 2	All	Plan														
		Actual														
3D Printing 2	Asyraf	Plan														
		Actual														
Design Assembly and Programming 2	Asyraf & Asyikin	Plan														
		Actual														
Demo Day	All	Plan														
		Actual														
Final Battle	All	Plan														
		Actual														
Final Report Submission	All	Plan														
		Actual														

FLOWCHART



TEAM MEMBERS



1. Asyraf Zhofran Bin Ismail TL23016
2. Nor Asyikin Binti Din TM23016
3. Muhamad Hafiz Bin Abd Rahman TM23046

SCAN TO SEE OUR MODEL

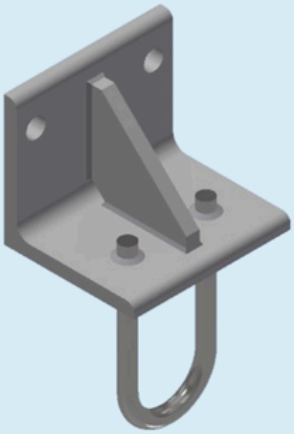
CREATED USING:

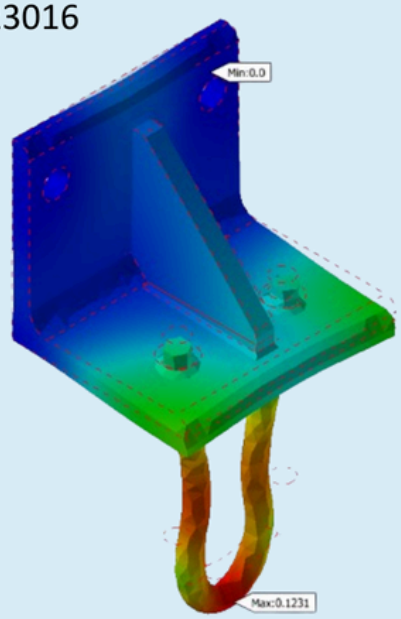
SOLIDWORKS SOLIDWORKS SIMULATION Canva ARDUINO

LINEAR STATIC STRESS OF A WELDED STEEL HANGER

ASYRAF ZHOFRAN BIN ISMAIL
TL23016

- linear static stress analysis of a welded steel hanger to which a 6000 N downward load is applied.
- The weld beads are included in the CAD model as a separate multi-body part so that the stresses in the welds can be determined.





OBJECTIVE

- Determine the maximum von Mises stress in the assembly.
- Determine the maximum displacement magnitude.
- Determine the safety factor in the overall model and, specifically, in the welds.

CONSTRAIN

- Cylindrical surface of two holes in the vertical leg of the Angle – Fixed
- Edge along bottom outside corner of the Angle – Tx

LOAD

- Force of -6000 N in the Y-direction applied to the top half of the face at the middle of the U-Rod bend

AUTODESK Inventor Nastran

MATERIAL

- Angle and Gusset – Steel ASTM A36
- U-Rod and Welds – Steel AISI 1045 225 ANLD (annealed).

CONTACT

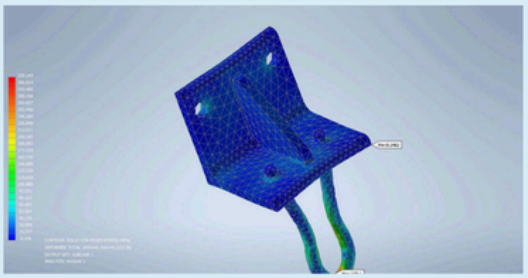
- Contact Type – Bonded
- Contact generation method – Automatic
- Suppress contact between the Angle and Gusset (these parts are indirectly connected via welds)

MESH PARAMETER

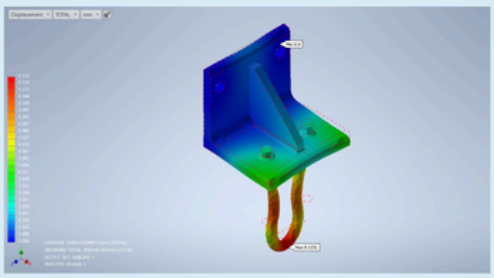
- Continuous Meshing – Disabled
- Size:

1. All parts except Welds - 3.7 mm
2. Welds - 1.5 mm

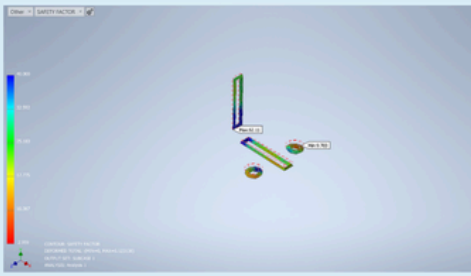
VON MISES STRESS



DISPLACEMENT



SAFETY FACTOR



BTD3124 PRODUCT DEVELOPMENT 5

ECO MOVERS

THE FOLDABLE ELECTRIC SCOOTER

PROBLEM STATEMENT

- The existing electrical scooter is not foldable for compact storage
- Difficult to store inside vehicle for travelling purpose
- Difficult to design mechanical structure to ensure its functionality, compactibility and durablebility.

OBJECTIVE

- To design and develop a foldable electrical scooter
- To conduct testing and evaluation on the foldable electrical scooter

METHODOLOGY

- Develop a compact and durable folding mechanism
- Design a lightweight, detachable, and foldable seat
- Implement a three-wheel design to improve stability and safety, particularly for beginners or rough terrain.

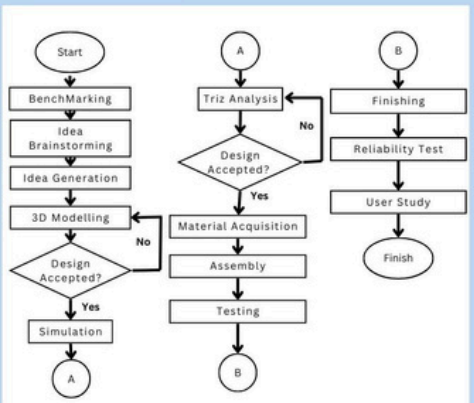
SCOPE

- To design and simulate electrical scooter to withstand maximum load of 120 KG
- To fabricate the mechanical system and combine with electrical system
- To conduct load testing, reliability and user study for the foldable electrical scooter

BILL OF MATERIAL

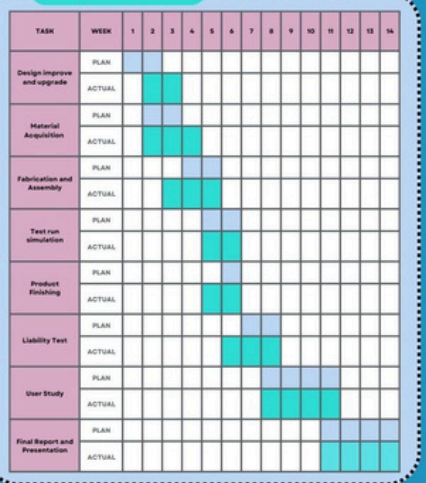
No. part	Part Name	Quantity	Cost (RM)
1	Handle	1	23.09
2	Throttle Accelerator	1	21.32
3	Seat Stem	1	27.00
4	Seat	1	12.00
5	Motor Controller	1	25.45
6	Back Cover	1	41.79
7	Battery 25.2V 7ah li-ion	1	425.22
8	Fork Support	2	8.50
9	Wheel	2	48.34
10	Brake Plate	1	14.21
11	Brake Caliper	1	18.69
12	Shaft Axle	1	7.00
13	Washer	4	3.60
14	Rear Fork	2	30.00
15	Foot rest	2	10.50
16	Shock Absorber	2	14.19
17	Front Cover	1	39.50
18	Body Platform	1	80.00
19	8inch Wheel Brushless Motor 24V 350W	1	231.00
20	M8 Hex Socket Screw	4	2.56
21	Folding Lock	1	7.00
22	Front Fork	1	84.97
23	Folding Connection	1	65.00
24	Clamp	1	30.00
25	Brake Lever	1	15.00
Total			RM1285.93

FLOWCHART

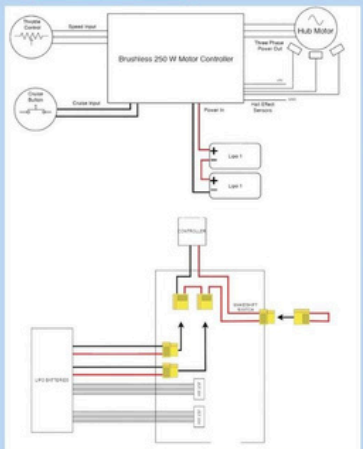


3D EXPLODED VIEW

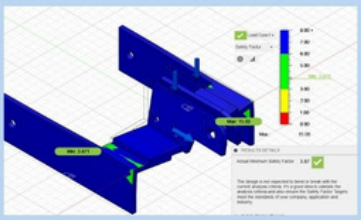
GANNT CHART



ELECTRONIC DESIGN



FEA SIMULATION



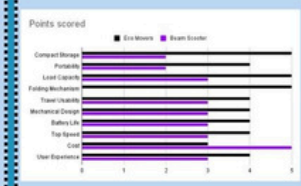
Load
= 120N

Stress von mises
= 53.469MPa

Total Displacement
= 0.319mm

Safety factor
= 3.87

USER STUDY



PROGRESS

PERFORMANCE TEST

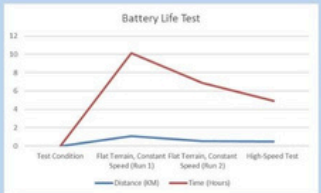
LOAD TEST

Load (kg)	Speed (km/h)
76.8 (Vimal)	24.67
84 (Hilman)	23.4
89 (Zafran)	22.17
95 (Asyraf)	19.7

SPEED TEST

Parameter	Speed (km/h)
Maximum Speed	25
Average speed	20

BATTERY LIFE TEST



Test condition	Time (Hours)	Distance (Km)
Flat terrain constant speed (Run 1)	1.07	10.12
Flat terrain constant speed (Run 2)	0.54	6.87
High Speed Test	0.48	4.94

TEAM MEMBERS

ASYRAF ZHOFRAN BIN ISMAIL TL23016

MUHAMMAD HILMAN ARHAM BIN AZHA TL22070

ZAFRAN NAZRAN BIN ZAINAL ABIDIN TK22025

VIMAL A/L ARUMUGAM TK21045

SUPERVISOR : MR. IDRIS BIN MAT SAHAT

SCAN ME :

CREATED USING:

SOLIDWORKS SOLIDWORKS SIMULATION Canva F 360