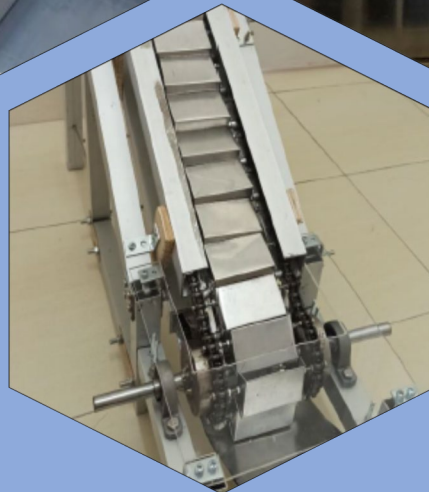


PROTOTYPE DESIGN COLLECTION

SERIES 1



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Ahmad Najmie Rusli

Nurul Nadiah Rasdi

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Jalan Purnama, Bandar Seri Alam,
81750 Masai,
Johor Darul Ta'zim.
Tel: +60 7-381 8493

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CHAPTER 52

Development of Propulsion System for Water Trash Collector

Raudah Binti Nordin and Norhisyam Jenal

*College of Engineering (Mechanical), Universiti Teknologi MARA Johor Branch,
Pasir Gudang Campus, 81750 Masai, Bandar Seri Alam, Johor Darul Ta'zim.
Email: raudahnordin01@gmail.com*

PROJECT DESCRIPTION

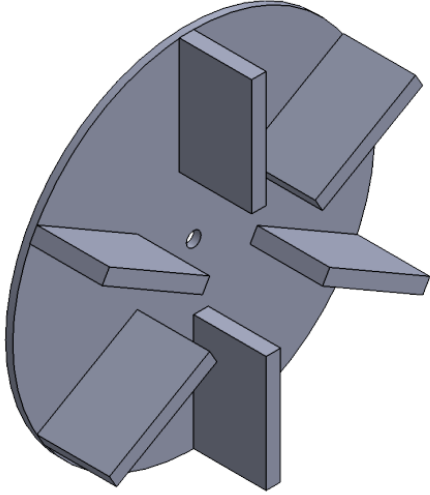
Nowadays, the river is highly exposed to pollution where garbage and chemicals are dumped into the river by irresponsible people and industries. One way of preventing this problem is using water trash collectors to help clean up floating garbage such as plastic waste along the river, lake, and ocean. Due to the low amount of study done on water trash collectors in the nation, there is a need for an automated trash collector to help solve this problem. The objective of this project is to design and develop an electrical propulsion system for a water trash collector. The project is a part of a three-part project to develop an automated water trash collector. The propulsion system was designed using computer-aided design (CAD) software. The manufacturing processes involved in the fabrication process were cutting, drilling, soldering, and assembling. The water wheel was fabricated out of PVC and there were six blades attached to the wheel. The wheel is spun using a DC motor powered by a 12V battery supply. The propulsion system should be capable of spinning the water wheel at a speed of 5.08 rad/s in water. This configuration is expected to provide enough force to propel the water trash collector forward during operation.


Keywords: *Water wheel, DC motor, electrical propulsion system*

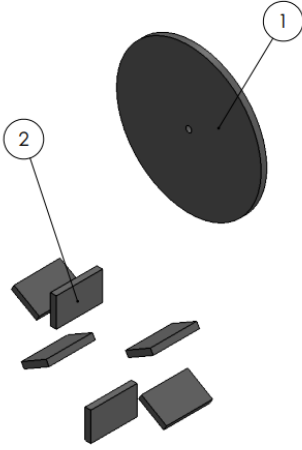
PROTOTYPE




DESIGN PARAMETER

	6	5	4	3	2	1
D						D
C						C
B						B
A						A
6	5	4	3	2	1	

FAKULTI KEJURUTERAAN MEKANIKAL (FKM) UNIVERSITI TEKNOLOGI MARA (UiTM) JOHOR KAMPUS PASIR GUDANG				
Course Name		MEC300 - FINAL YEAR PROJECT 2 SESSION; SEPTEMBER 2021 - MARCH 2022		
Group		J4EM1105F		
Approved	Checked	Drawn RAUDAH BINTI NORDIN 28/2/2022		
Drawing Title ASSEMBLY OF DEVELOPMENT OF PROPULSION SYSTEM FOR WATER TRASH COLLECTOR				
Part Name -				
Part No. -				
Rev.	Scale	Projection	Weight	Sheet
0	1:2		1.5 kg	18/19

	6	5	4	3	2	1
D						D
C						C
B						B
A						A
6	5	4	3	2	1	

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	circle	Diameter = 250mm Diameter hole = 10 mm	1
2	blade	80mm x 50mm x 5mm	6

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Part Name -				
Part No. -				
Rev.	Scale	Projection	Weight	Sheet
0	1:5		1.5 kg	19/19