

# DESIGN AND DEVELOPMENT OF MOTORBIKE ROOF SHIELD FOR DELIVERY SERVICE

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## BACKGROUND OF THE STUDY



STUDIES

## PROBLEM STATEMENT

Due to the irregular Malaysian climate, many motorcycle owners especially delivery riders, experience difficulties during the rains and disrupt services.

## OBJECTIVES

To design and develop a portable and retractable motorcycle roof which meets the requirement for delivery services regardless of the weather.

## IMPACT TOWARD SOCIETY

### a) Rider

- Help the delivery rider to increase income and protect them from hot weather.

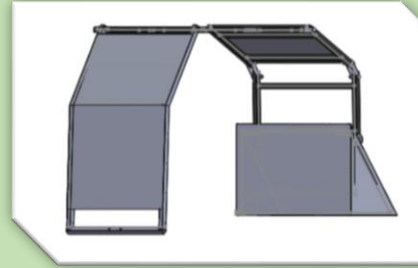
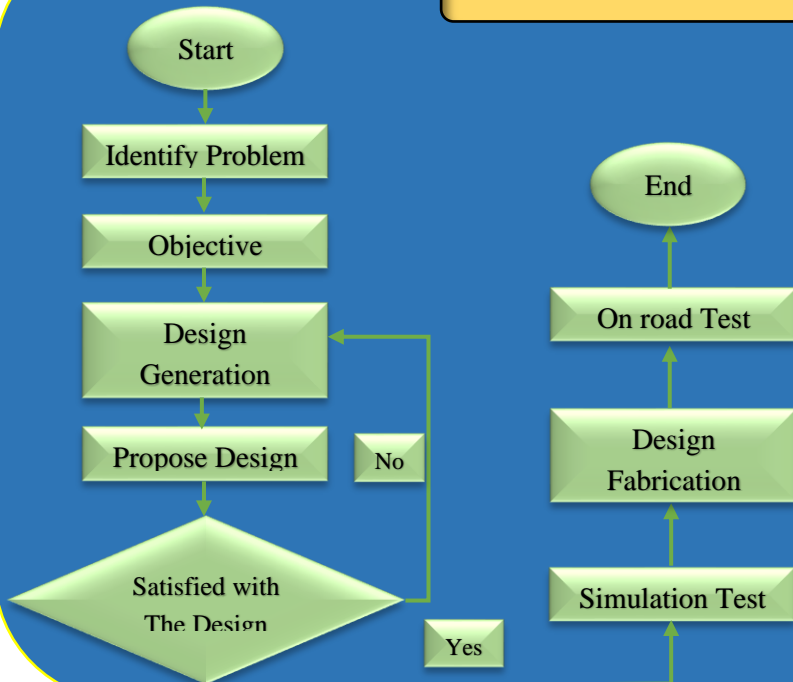
### b) Community

- The customer can receive their order on time although it's drizzle weather

### c) Nation

- Help to reduce the amount of accident during drizzle weather.

## METHODOLOGY



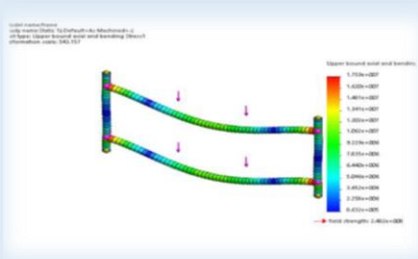
- The design be choose by doing concept screening.
- The drawing have be carry out with exact dimension and simulation studies have be perform by using this drawing.

## NOVELTY AND ORIGINALITY

- A portable roof type with retractable system which new in market because most of the motorbike roof in market are fix type.
- The working principle are more user friendly because easy to fix and keep it.
- Have good strength properties because it can withstand the air flow when the motorbike travel 80 Km/h.
- The material be used to fabricate cheap and in the same time have good mechanical properties.

## RESULTS AND DISCUSSION

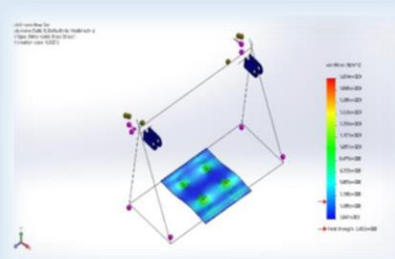
### • Frame



Stress Test

- Max Stress: 1.759e+7 N/m<sup>2</sup>

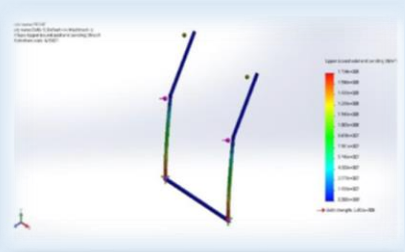
### • Roof Box



Stress Test

- Max Stress: 2.034e+8 N/m<sup>2</sup>

### • Windshield



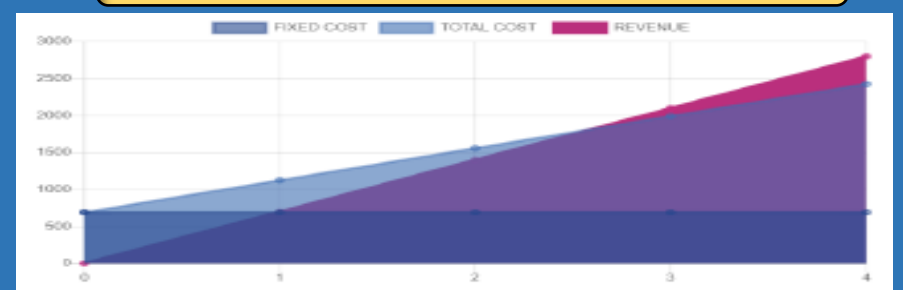
Stress Test

- Max Stress: 1.724e+8 N/m<sup>2</sup>

### • Final Product



## ECONOMIC ENGINEERING ANALYSIS



- Fixed cost: RM 690
- Variable cost: RM 434.25
- Volume Sold: 3 Units
- Sales Price per Unit: RM 700
- ROI: 40.85%

## ACKNOWLEDGEMEN

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- We also would like to thank UMP product development grant, PDU203203 for financial support for this project.

## CONCLUSIONS

We have achieved the objective of this project. In future, we think that more aerodynamic concept can added on the design to reduce the air resistance.

## COLLABORATION



MODENAS