Inter

DESIGN AND DEVELOPMENT OF INTEGRATED MUDGUARD FLAP FOR TWO WHEELERS

S.Rishi¹, R.Kenlinliju², Mr. S. Lakshmi Sankar³

¹S.Rishi, Mechanical Engineering. Sathyabama Institute of Science and Technology, Semmancheri, Chennai, Tamil Nadu 600119, India.

²R.Kenlinliju, Mechanical Engineering. Sathyabama Institute of Science and Technology, Semmancheri, Chennai, Tamil Nadu 600119, India.

³Mr. S. Lakshmi Sankar M .E. (Ph.D.), mechanical engineering. Sathyabama Institute of Science and Technology, Semmancheri, Chennai, Tamil Nadu 600119, India.

***_____

ABSTRACT-During rainy season, if the two wheeler advances it creates dust at the those who observe the automobile due to the absence of Mud defend in the automobile. It not only creates dirt on humans, however also there may be a possibility to encounter dangerous injuries due to the discomfort in driving. It is necessary to deal with this difficulty in the current wheelers by means of adopting a simple immediately fix technique to add mud flap with mud defend at the front and rear and for this reason the hassle is nullified. Also there is a scope to combine the mudguard flap within the Mudguard itself in the course of the improvement of layout, as an integrated component. A progressive design has been made to reinforce the extension within the Mudguard in equal mudguard material, so that this problem will get resolved in future bikes. There is a hope of reducing accident charge because of adoption of such system in a massive way. This improvement prevents grimy water to fall on the rider and different following riders in different motors as the improvement in layout offer solution for each. In the work it's far proposed to develop immediately restoration technique for current vehicles and to design and expand the shape integration in proposed mudguard design, which in reality prevents the viable injuries and brings avenue protection and harmony for riders.

1. INTRODUCTION

Regardless of whether you're a periodic bicycle owner or an ordinary suburbanite, rather moist weather shouldn't frighten you away your bicycle for the season. Keep your trip streak going with those hints and hacks for trekking inside the downpour, and rework an inauspicious estimate right into a tolerable force. Reward: The bicycle route may be way less swarmed.





LITERATURE REVIEW

JOURNAL NAME	YEAR OF PUBLICATION	PROS	CONS
TAVERNIER,LUC	2017	It is used to prevent both rider and the person from other two wheeler .	Choosing wrong mudguardflap can cost then to rab against ground.
ROBERT, HERVE	2017	mudguardflap productive Your vehicle by safely deflecting road dervise away from the spender wells.	If you do not go properly instilling mudguard flap they could fall off.

Table 2.1

2. OBJECTIVES

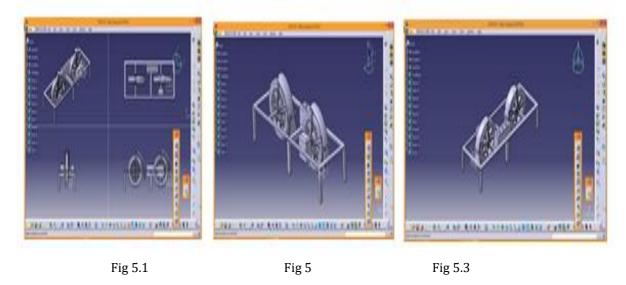
- It is beneficial for riding in blustery season
- > It likewise forestalls tossing of earth water accessible on road on our clothes.
- It is also to forestall blustery water sprinkle on the rider, due to front haggle comply with the car at rear by a few other motorcycles.
- > The easy restoration moment curved defend will stop the water sprinkle on rider and the devotees.
- An creative plan has been made to feature the augmentation within the Mudguard with identical curved protect material, so this difficulty will get settled in destiny wheelers.
- > The improvement is relied upon to provide fine riding.

3.1 PROCESS

- Catia modeling fabrication set up
- Catia-flap modeling
- Ansys-flap dynamic analysis
- > Finaly fabrication set up as per model design.

MODELLING

CATIA stands for Computer Aided Three-Dimensional Interactive Application. It's much more than a CAD (Computer Aided Design) software package. It's a full software suite which incorporates CAD, CAE (Computer-Aided Engineering) and CAM (Computer-Aided Manufacture).



4.1 WORKING

The item is straightforward and efficaciously fixable with the modern curved protect via the easy restore simple clasp machine. It is proposed to attach Florence purple shading sticky label at the curved guard to be constant to the back curved shield. During nighttime at the off chance that posterior coming car tosses mild to the the front aspect car, the fluorescence curved guard shines in crimson tone adding readiness and health tour for individuals. This is an additional benefit for the duration of night time journey. To tentatively check the purposed curved guard paintings and not using a harm and numerous sprinkle pace of water. Three various prices re taken into consideration to test the curved guard fold appropriateness. To build up another result of adding fold integrated plan with curved protect for brand new vehicles and to configuration increase a second curved guard fold which can be brought effortlessly to the modern-day bicycles.

3. MATERIALS AND METHODS

- crude materials
- > wheels
- speed variation motor
- mud guard
- square tube
- battery
- wires
- ➤ bearing

MATERIALS





Fig 8.2



SQUARE TUBE



Fig 8.1

Fig 8.3 Fig: 4



1. DESIGN MODELS

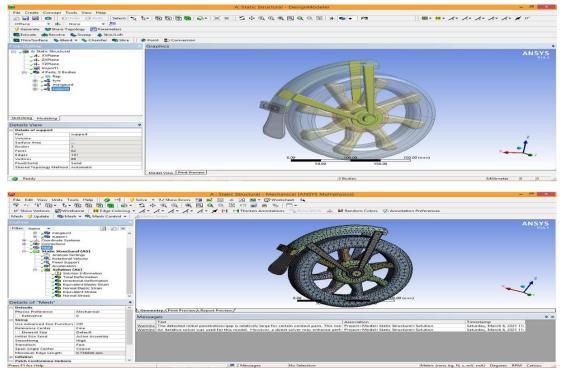


Fig: 6.1

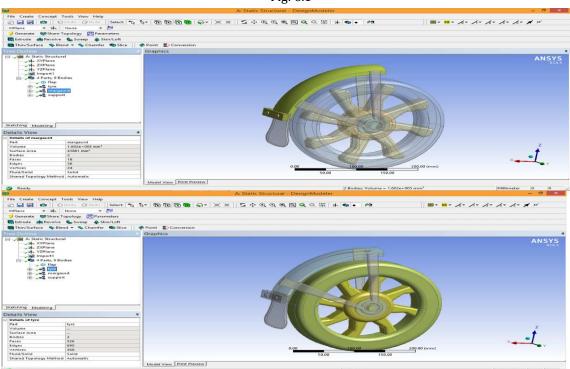


Fig: 6.2



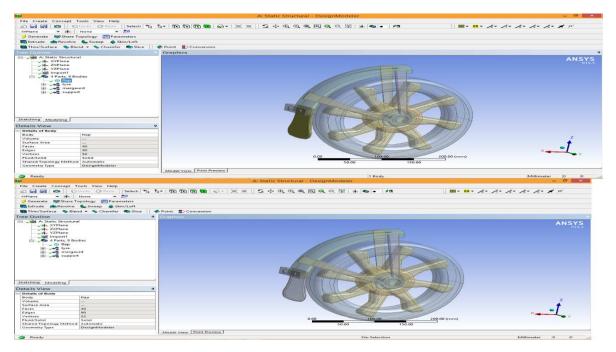
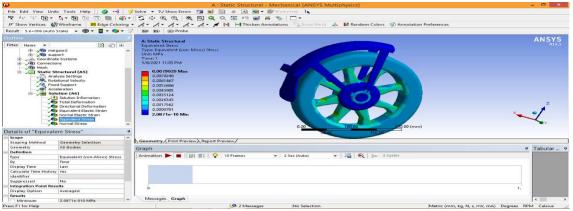


Fig: 6.3

2. ANSYS RESULTS

1		A:S	Static Structural - Mechanical [ANSYS Multiphysics]	_ 0 ×
File Edit View Units	Tools Help	ive 👻 ?/Show Errors 🏥 🚻	🗈 👍 \Lambda 😥 🕶 🏙 Worksheet is	
P + " T - T	- 10 10 10	5 * Q Q Q Q Q Q	2, 12 /2 🗃 🗃 🗞 🗖 +	
			💽 🔤 Thicken Annotations 🔤 Show Mesh 🤸 🖬 Random Colo	rr Annotation Preferencer
				S W Annotation Frederices
Result 5.e+006 (Auto Sc	ale) - 199 - 11 - 13	IND IND IND Probe		
Outline		A: Static Structural		ANSYS
Filten Name +	() () () () () () () () () () () () () (Normal Stress		819.5
😟 🚕 🧐 marga	urd	Type: Normal Stress(X Axis)		
E support		Unit: MPa		
Coordinate :	Systems	Global Coordinate System		
Connections		Time: 1 3/6/2021 11:03 PM		
Cen Mesh		376/2021 11:03 PM		
Static Stru		- 0.010923 Max		
Rotati	is seconds	0.0095968		
CP, Fixed 1	Support	0.006271		
Accele	ration	0.0069451		
E Soluti	ion (AG)	0.0056193		
	iolution Information	0.0042934		
	otal Deformation	0.0029675		7
	Directional Deformation	0.0016417		
	quivalent Elastic Strain	0.00031583		× •/
	formal Elastic Strain	-0.00101 Min		
(C) 1	formal Stress			
Street, and			0.00 100.00	20.00 (mm)
Details of "Normal St	tress"		90,00, 150,0	
🖃 Scope				
	Seometry Selection	Geometry Print Preview Report Print	eview/	
	All Bodies	raph		P Tabular P
Definition		Animation 🕨 🔳 📖 🖽 🖓	10 Frames - 2 Sec (Auto) - 🏹 🔍 🎰	1 Contract
	formal Stress		To Frames • 2 sec (Auto) • All • All • All • All	3 Christ
	(Axis			
	lime			
	ast			
	Slobal Coordinate System			
Calculate Time History	'es			
Identifier		0.		1
	40			
Integration Point Result		Messages Graph		
	Averaged	messages criabil		< >
Press F1 for Help			2 Messages No Selection	Metric (mm, kg, N, s, mV, mA) Degrees RPM Celsius









International Research Journal of Engineering and Technology (IRJET) e-ISS

e-ISSN: 2395-0056 p-ISSN: 2395-0072

IRJET Volume: 08 Issue: 03 | Mar 2021

www.irjet.net

3		A : Static Structural - Mechanical [ANSYS Multiphysics]	- D ×
File Edit View Uni	its Tools Help 🛛 🥥 🕂	≶ Solve 🔻 ?/Show Errors 🏥 👪 🖾 🐠 💽 🐠 🖛 🗰 Worksheet	
P 17 18 18 -	🏷 • 🕅 🕅 🕅 🔳 🚺	\$< \$< \$< \$< \$< \$< \$< \$< \$< \$< \$< \$< \$< \$	
		ring • 1/6 • 1/1 1/2 • 1	
	Scale) - 🕅 - 🖥 - 💋		
	iscare) + the - to -		
Outline		A: Static Structural	ANSYS
Filter: Name 🔻	Ø 🕢 E		
🗈 🛶 🏟 mar	rgaurd	Type: Directional Deformation(XAxis)	
E x Sup		Unitemm	
E Coordina		Global Coordinate System	
Connection Connection	ions	3/6/2021 11:02 PM	
C Etatio E	itructural (A5)	STOCAL STRUCTURE	
And And	alysis Settings		
P. Rot	tational Velocity	3,8213e-7	
	ed Support	-2.0716e-7	
Acc	celeration	-7.9645e-7	
🗉 🦯 🧙 Sol		-1.3857e-6	
····	Solution Information	Automatic	
	Total Deformation	-2.56438-6	Z
	Directional Deformation	-3.1536-6	4
	Equivalent Elastic Strain	-3,74298-6	×_ •/
1	Normal Elastic Strain Equivalent Stress	-4.3322e-6 Min	
	p Equivalent Stress		No. of the second se
~~	p Normal an ess	0.00 100.00 200.00 (mm)	
Details of "Directic	onal Deformation"	9 30,00 150,00	
- Scope			
Scoping Method	Geometry Selection	\Geometry \Print Preview \Report Preview /	
Geometry	All Bodies	Graph	7 Tabular 7
 Definition 		Animation 🕨 🔳 🛄 🖳 💡 10 Frames 🔹 2 Sec (Auto) 🔹 🌃 💽 📷 3 Cycles	
Туре	Directional Deformation	Animation 🕨 🔳 🛄 🛄 💡 10 Frames 🔹 2 Sec (Auto) 📼 🏣 👻 Ige- 3 Cycles	
Orientation	X Axis		
Ву	Time		
Display Time	Last		
Coordinate System	Global Coordinate System		
Calculate Time History	y Yes		
Identifier		9.	1
Suppressed	No		
- Results			
- Income			
Minimum	-4.3322e-006 mm	Messages Graph One 2 Messages No Selection Metric (mm, kg, No Sel	< > >

fig: 7.3

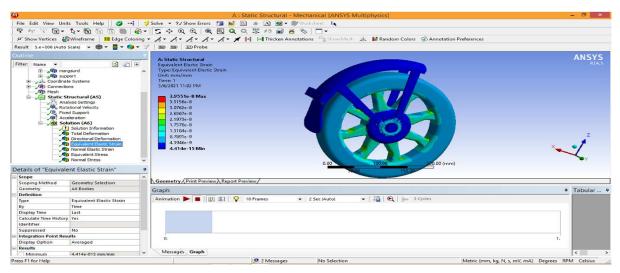
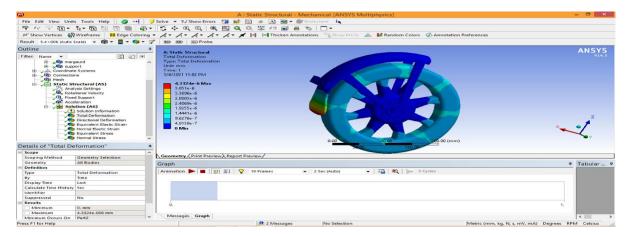


Fig: 7.4





International Research Journal of Engineering and Technology (IRJET)e-ISSN: 2395-0056Volume: 08 Issue: 03 | Mar 2021www.irjet.netp-ISSN: 2395-0072

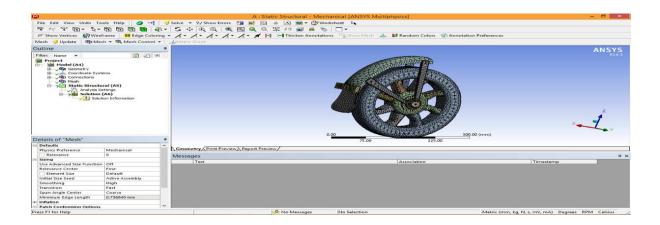


Fig: 7.6

APPLICATION

Mudguard flap is used to prevent as from mud water.

The improvement brings comfort for rider and following vehicles as the existing trouble in motor cycle front and rear wheels is addressed.

The proposed new product mudguard design avoids the trouble and serves the cause in new cars.

REFERENCES

- 1. Johnson, Larry. "Battery Tutorial". Chargingchargers.Com. Charging Chargers. Retrieved 2016-02-15.
- 2. ^ "What is a lead battery?". Batterycouncil.Org. Retrieved 2016-02-17.
- 3. ^ "Automotive Charging Systems A Short Course on How They Work". Youtube.Com. Archived from the original on 2015-09-17. Retrieved 2016-02-17.
- 4. Four.^ "Q & A: Car Batteries". Van.Physics.Illinois.Edu. Retrieved 2016-02-18.
- 5. Five. ^ Jump up to:a b c Vartabedian, Ralph (August 26, 1999), "How to Avoid Battery Explosions (Yes, They Really Happen)", Los Angeles Times
- 6. ^ Jump up to:a b c Injuries Associated With Hazards Involving Motor Vehicle Batteries, National Highway Traffic Safety Administration, July 1997
- 7. ^ Herron, David. "Why is there a 12 volt lead-acid battery, and how is it charged in an electric powered vehicle?". Greentransportation.Info. Retrieved 24 May 2020.
- 8. ^ "History of the automobile battery". Www.Racshop.Co.Uk. Retrieved 2016-02-17.
- 9. Nine. ^ "Positive Vs. Negative Ground Will charger paintings on high-quality floor vehicles?". Www.Batteryfloatchargers.Com. Retrieved 2016-02-18.
- 10. ^ "Why POSITIVE EARTH?". Mgaguru.Com.