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A Metal Framed Car Cover

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Abstract

An idea to solve the tedious task of covering the car. It's a frame which is divided in fragments, when the first fragment or section is pulled, with the connection made to each other provides a force which smoothly covers the car. This cover consists of different mechanical components and materials such as stainless steel pipes, nut and bolts etc., which all together make a mechanism. This cover is different from the old car cover and is very easy to use and portable too. The pipes will be connected in such a way that the user can fold it and convert to a size which can be kept in the trunk space. The rotary mechanism used in the cover is for the smooth rotation of pipes about spindle axis. The joints are temporary that is nut and bolt will be used in it. The best part of the cover is that if the fabric of the car cover tears then the user only needs to replace the fabric not the mechanism. This cover will protect the car from different weather conditions such as hailstorm because of the space inside it will also keep the temperature of the car little down as compared to the ordinary car covers. The cover design is aerodynamic so that it can resist heavy air flow to the maximum possibility. An extra support will be given to the spindle on which the pipes are mounted so that it can be easily kept on the ground. Thus it saves lot of time in covering the car and cost effective.

1. INTRODUCTION

As we are seeing in our daily life that technology is accelerating in this modern world, so here I come with an idea to give some contribution in this modern technological world. This is the era of automation and automatic system therefore presenting a design and physically made model of **"A Metal Framed Car Cover"**. This will be operated manually by pulling the cover with the center shaft stationed onto the ground. The system is very robust as mentioned earlier and save lot of time and work.

2. METHODOLOGY

2.1. DISCRIPTION

A frame in the shape of car which is divided in fragments when these fragments are pulled each of them will cover the part of car. The frame or fragments are made up of stainless steel pipe because of its corrosion resistance property.

2.2. EQUIPMENTS USED

1. SS pipes
2. Spindle
3. Joints
4. Cloth or cover
5. Nut and Bolt

- **Joints** – These are used to make the frame foldable so that the cover becomes portable.
- **SS pipes** – Stainless Steel pipes are used because of its non corrosive and easy availability.
- **Nut and bolt** – these are temporary joints as mentioned earlier, so that the pipes can fold easily.

2.3. PROCEDURE OF MAKING

1. All the parts are designed in software's such as AutoCAD, Creo/Pro-E, Solid works.

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2. The cover is made with reference of Wagon R dimensions.
3. Different sizes of SS pipe as per the dimensions are taken.
4. Slots are been made in the pipes for the joints so that the pipe can rotate about it and it can become portable.
5. All the pipes are connected on a single shaft on either sides about which the main frame will rotate
6. After the frame work car cover will be sewed onto the frame.

2.4. ENGINEERING PRACTICES

1. Electric Arc Welding
2. Grinding
3. Drilling

2.5. DESIGN OF FRAME AND PARTS WITHS DIMENSIONS

Fig.1 consists of joints will make the frame portable i.e., this will make it easy to fold from full large frame to a compact frame to which is to be stored in the trunk space.
Fig.2 is the spindle, the fixed and the stable part of the frame which will support the rotary motion of the section and the smoothness to the rotation while covering the car.
Fig.4 this is the ring, where the hollow part will slide onto the spindle and fit on the space (collars) provided between. The small extrude part is for the rod, this extrude part will be pushed inside the rod to complete the frame as we can see in Fig.3.

1. For perfectly covering of the car, it is necessary that the movable links should have perfect motion with respect to fixed link for providing a perfect motion. Both spindles have 3 collars to constrain the translational motion of the links on the shaft.

3. DISCUSSION

3.1. APPLICATION AND MODIFICATION

It can cover the car irrespective of the model whether a sedan or SUV it can cover both due to its standard size. On later stage to make it automatic electronics can be introduced like: Arduino, Bluetooth module, DC motor. **DC Motor**: The motors used in this project with low RPM and high torque so that it can pull the rods.

Arduino: This is a micro controller which will provide output to the Bluetooth module.

Bluetooth Module: Bluetooth module is used to connect the motors with our mobile.

Shaft with Slots: Slots will be done so that we can stop the rods at an angle.

1. We can make it more compact.
2. Later on it can be a inbuilt system of the cars (e.g. Convertibles system)
3. We can make it lighter by using appropriate materials like aluminium. (but it would be very difficult to weld so better to take steel pipes with less thickness).

3.2. ADVANTAGES

1. Easy to use
2. Less time taking
3. It can withstand in storms
4. Makes no scratches or damage on car body.
5. Cost effective

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4. BILL OF MATERIAL

MATERIAL	PER UNIT COST	TOTAT QUANTITY	TOTAL COST
SS PIPES	158 per kg	6.5 Kg	1027
SCREWS AND NUTS	5 per piece	30	150
CLOTH STRIP	200 per kg	0.5 kg	100
COVER	20 meter	9 meter	180
MISCELLANEOUS			400
			1857

5. CONCLUSION

The system is very useful as it is portable and can cover any car anywhere, it also keep the car scratch free. But problem with the physical model I made was heavy, so much lighter material should be used also the base should be rectangular in shape from the bottom. Lighter the weight of the frame more unstable it will become when wind will flow. So if I conclude with the factors I mentioned this system could be used in public parking areas where these covers will be already fixed to the floor and the owner will simply park the car and cover it.

6. REFERENCES

[1] E. Ray, Vehicles Covers Protect, 2010.

[2] R K Tyagi, M K Verma, “An Innovative Approach for Automatic Car Cover” International Journal of Innovative Research in Science, Engineering and Technology (IJIRSET), Vol. 2 (9), pp 4825-4829, 2013.

[3] T. J. Suh, “Automatic deploying car cover system for a car equipped with an automatic opening/closing trunk”, 2007.

[4] N. M. Z. Hashim, A. S. Jaafar, N. A. Ali, L. Salahuddin, N. R. Mohamad, M. A. Ibrahim, “Traffic Light Control System for Emergency Vehicles Using Radio Frequency”, IOSR Journal of Engineering (IOSRJEN), Vol. 3 (7), pp 43-52, 2013.

[5] S. A. W. A. S. Mokhtar, N. M. Z. Hashim, N. R. Mohamad, A. Jaafar, A. Salleh, “Vehicle Security System Using ZigBee Technology”, International Journal For Advance Research In Engineering And Technology, Vol. 2 (7), pp 81- 85, 2014.

[6] N. R. Mohamad, A. S. A. M. Soh, A. Salleh, N. M. Z. Hashim, M. Z. A. Abd Aziz, N. Sarimin, Z. A. Ghani, “Development of Aquaponic System using Solar Powered Control Pump”, IOSR Journal of Electrical and

ISSN 2349-2317 (Online); DOI: 10.16962/EAPJMRM/issn. 0976-7193 (Print)/2015; Volume 12 Issue 1 (2021)

Electronics Engineering, Vol. 8, (6), pp 01-06, 2013.

[7] N. M. Z. Hashim, N. M. T. N. Ibrahim, Z. Zakaria, Fadhli Syahrial, H. Bakri, "Development New Press Machine using Programmable Logic Controller", International Journal Of Engineering And Computer Science, Volume 2 Issue 8, pp. 2310-2314, 2013.

[8] S. H. Husin, M. Y. N Hassan, N. M. Z. Hashim, Y. Yusop, A. Salleh, "Remote Temperature Monitoring And Controlling", International Journal For Advance Research In Engineering And Technology, Volume Issue 8, pp. 40-47, 201

LIST OF FIGURES

Fig.1 Frame

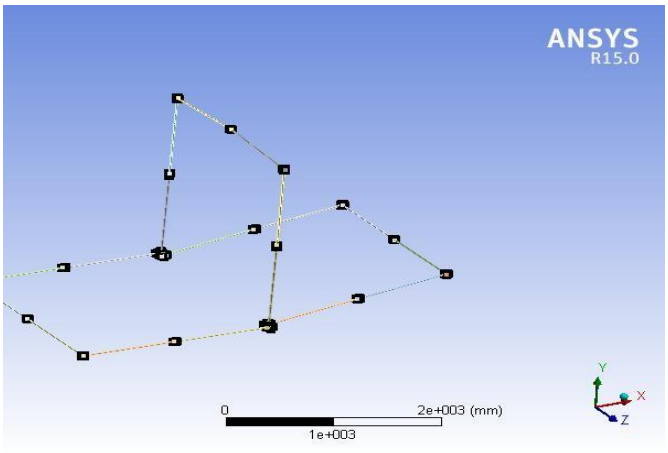

Fig.2 Spindle

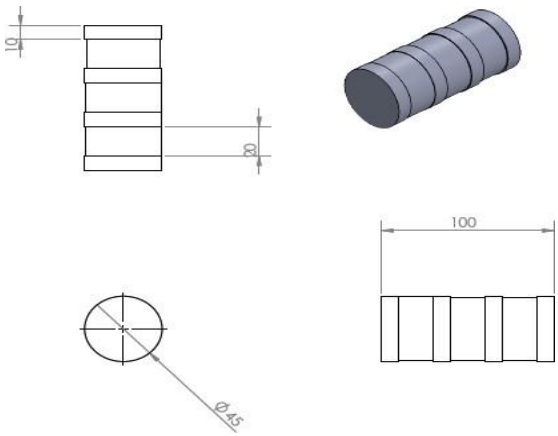

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Fig.3 Spindle and Ring

Fig.4 Ring

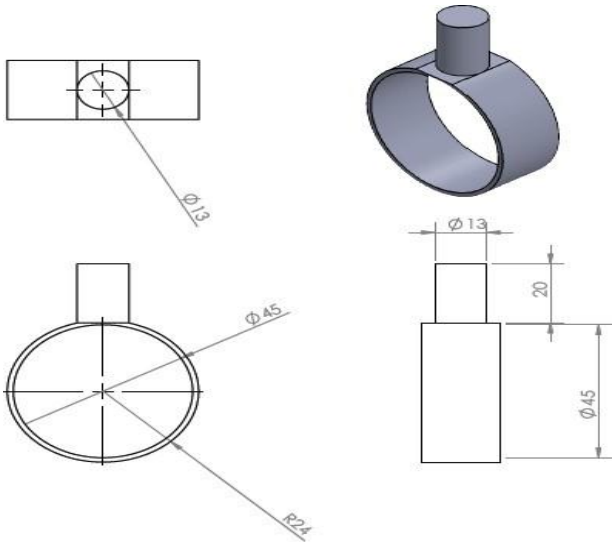

Fig.5 Final Assembly

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