"REVIEW PAPER OF ELECTRIC GO-KART VEHICLE"

[1]KUNAL P FALKE
Department of Mechanical Engineering, Wainganga College of Engineering and Management, Nagpur, India
krunalfalke882@gmail.com

[2]SACHIN R CHIMURKAR
Department of Mechanical Engineering, Wainganga College of Engineering and Management, Nagpur, India
sachinchimurkar321@gmail.com

[3]MANGESH B RAUT
Department of Mechanical Engineering, Wainganga College of Engineering and Management, Nagpur, India
mangeshraut347@gmail.com

[4]SANJAY Y KOLPE
Department of Mechanical Engineering, Wainganga College of Engineering and Management, Nagpur, India
sanjaykolpe6@gmail.com

[5]VISHAL S INGLE
Department of Mechanical Engineering, Wainganga College of Engineering and Management, Nagpur, India
vishalsingle1711@gmail.com

[6]PROF. DEVENDRA J. BISEN
Department of Mechanical Engineering, Wainganga College of Engineering and Management, Nagpur, India
wcem.tpo@gmail.com

ABSTRACT: *The objective of project is to make go kart for industrial uses and physically disable person with the help of speed controller. Go kart is growing fast during the last years, particular at industrial level. Which include new challenges with growing industries? This report is explaining how to manufacture the electric go kart with the help of PVC pipes and plywood.*

Keywords **:** Electric vehicle, Go kar, ANSYS software, Structural Analysis

1. INTRODUCTION

There are many motor sports in the world bikes, cars, formula one are example of them. The drivers in these are very professional and accurate. But these electric go karts which do not need professional drivers no need great speed. Even children can easily drive it. These vehicles are less economic. Go kart is simple four wheel car, single seated vehicle. Go karting is emerged in India in 2003. We are manufacturing electric go kart is very cheap in cost and its run on battery. we use these for domestic purposes like in botanical garden, large industries, railway station. We approach to design the electric go kart in CAD software and for analysis use ANSYS software.

2. LITRATURE REVIEW

For the working of domestic and daily uses we required to clear idea of basic requirement parameter and design of electric go kart. We made a detailed study on electric go kart and visited on go karting club in wardhaman nagar, Nagpur. We gain the more knowledge about the projects.

3. DESIGN AND FABRICATION OF FRAME

At the designing of frame, the main intension was to it is light weight as possible sustain maximum load or weight ratio. Fabricates the frame strong enough to sustain static load and impact load. non consideration design kept in mind to make compact and durable vehicle with low centre of gravity. And driver feel safely. Low centre of gravity indicate or ensure better stability to the vehicle. A simple frame was designed by placing PVC pipe as support for driver and other chassis components. At last final arrangement in the frame is to calculate the overall rigidity and breaking point of the structure. Further sides support structure where also added to increase load stability and load carrying capacity of the chassis.

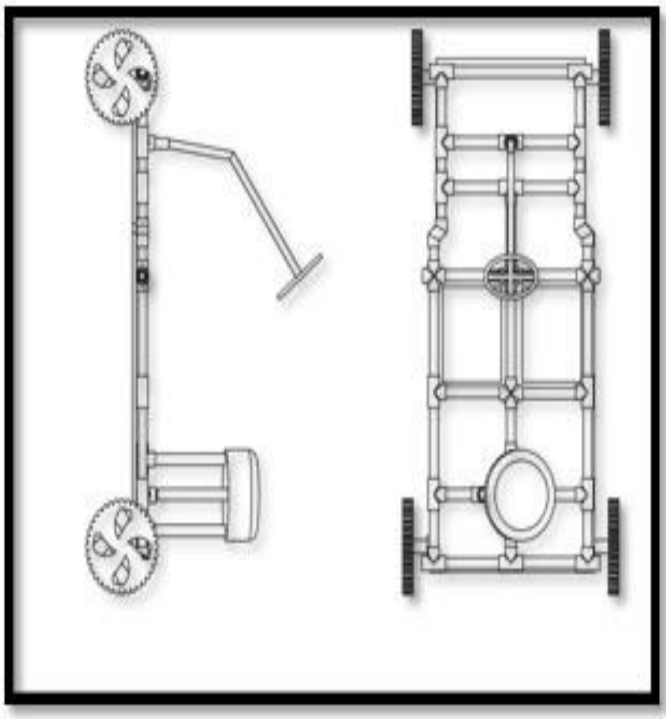

Figure 1: Top And Side View Of Model

Figure 3: Actual Model Design

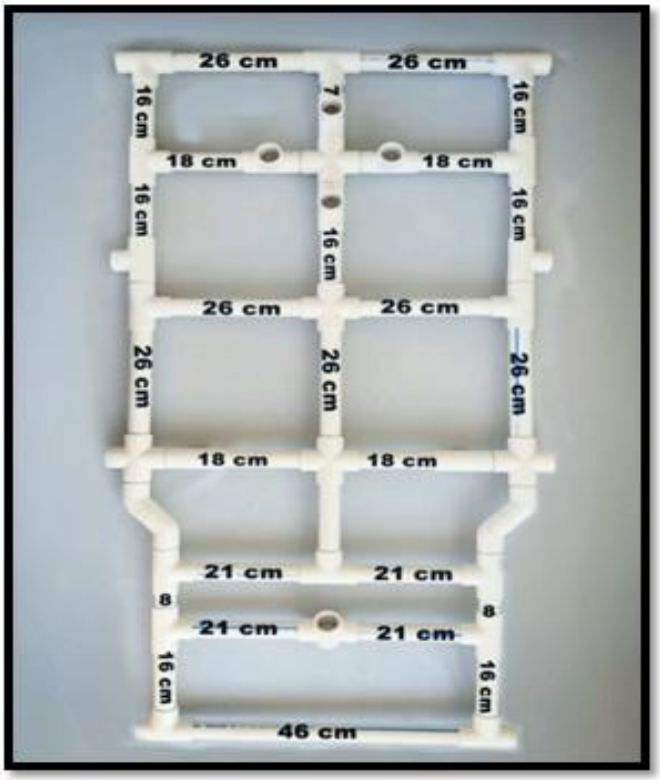

Figure 2: Chasis Dimension

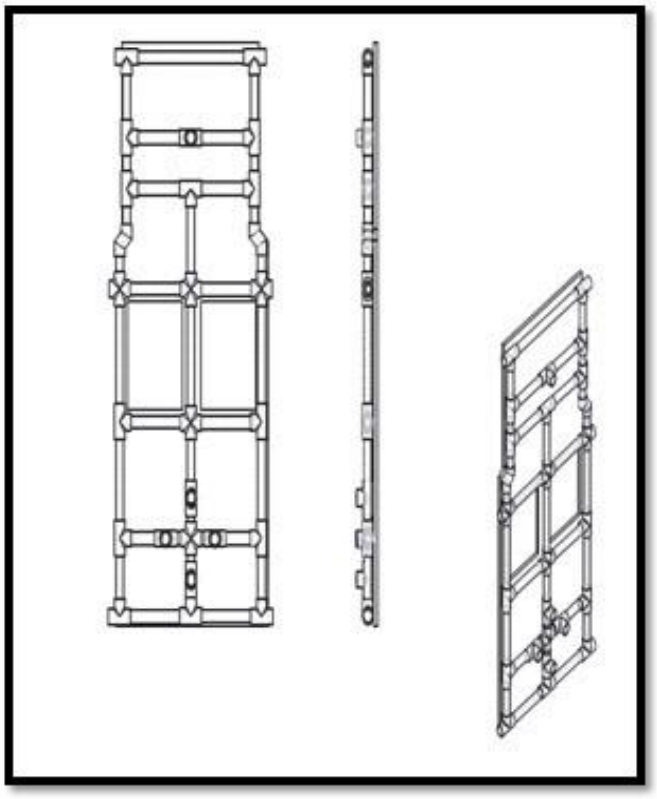

Figure 4: Chassis Design on Autocad

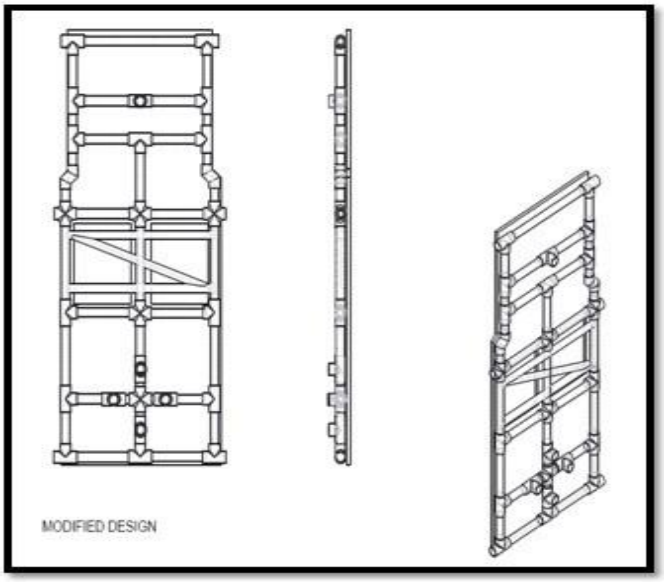

Figure 5: Modified Design after Checking on the Ansys

4. JUSTIFICATION

Round hollow u-PVC pipes are light in weight.

5. ANALYSIS OF FRAME

By using finite element method (FEM) the simulation of load analysis also performed and result of that shows the chassis was able to sustain all the vertical loading and impact load like front impact, rear impact and side impact respectively. Figure shows the results of analysis conduct on the frame.

Ansys 13.0 was used for frame analysis.

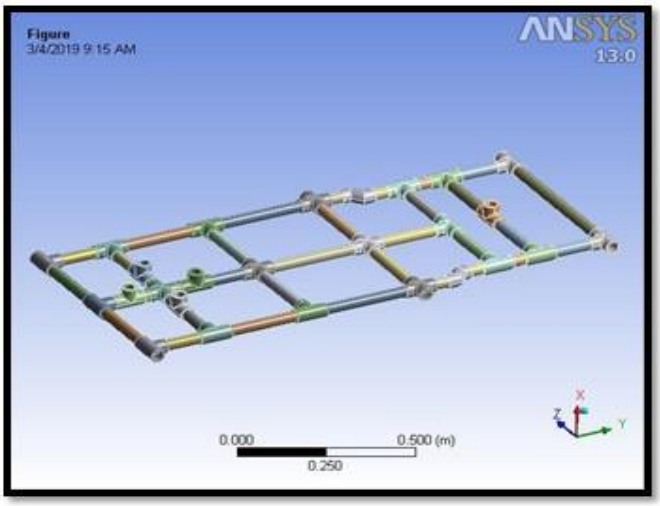

Figure 6: Ansys Chassis Model

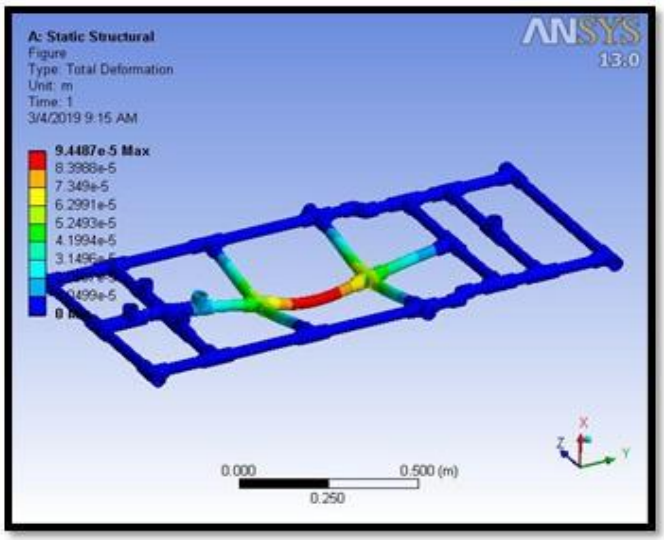

Figure 7: Stress on Chassis

The results of CAE indicated that design of frame was successful as it was not only light weight but could withstand all the tests which ensured driver safety and reliability of the frame.

6. FABRICATION PROCESS

Cutting, facing, drilling, shaping, grinding, polishing

7. VEHICLE DIMENSIONING

Table 1: Requirements of Components

1	Pipe	30 ft
2	T- joint	22 pieces
3	Su- joint	4 pieces
4	+- joint	6 pieces

Table 2: Cutting Dimensions of Pipe

	50 cm x 1		22 cm x 4
	30 cm x 4		16 cm x 7
	26 cm x 3		8 cm x 2
	25 cm x 4		7 cm 1

Table 3: Dimensions of Chassis

1	Total length of chassis	145 cm
2	Total width of chassis	73 cm
3	Total length of plywood	151 cm
4	Total width of plywood	77 cm
5	Thickness of plywood	12cm
6	Diameter of wheel	30 cm

8. SAFTEY AND ERGONOMICS

Safety is most important concern for our electric go kart. Ergonomics is designed perfectly for the comfort of the driver.

9. ELECTRICALS

24V DC battery will be used to power all the electrical component

10. CONCLUSION

Electric go kart completed successfully, as per planning and according to schedule and according calculation. Electric go kart is capable to sustain weight 70 kg and it is achieve a speed around 10-15 kmph. Electric go kart successfully done in less than 25000 cost as expected. It done successfully without any complicated calculation, without compromising in its components quality.

11. FUTURE SCOPE

- Go karting is a big craze to the American and Europeans. It is initially created in united state in 1950. Gradually it became a big hobby and other countries followed it.
- In India go karting is getting ready to make wave. A racing track is ready in Nagpur for go karting and Chennai is also trying to make one.
- MRF and Indus Motor are the major bodies in kart and they are offering very high price. For that many people are trying to build one under 1 lakh and we had also take up the challenge and make our under 25k.
- This is a dream come true. A go kart just under Rs. 25000/- so we are sure that our project will have a high demand in the industry.

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