DESIGN AND FRABRICATION OF ECO FRIENDLY DRILLING MACHINE ASSISTED GO-KART VEHICLE

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\textbf{ABSTRACT:} A Go Cart also wheeler run by I.C Engine. It is the process and methodology to produce a low cost go-kart. Simple but innovative, we have made a simple, self-fabricated „Go Cart‟, chassis formed by made of steel tube. There is no suspension therefore chassis have to be flexible enough to work as a suspension and stiff angular shaft. The purposes of this replacement are; for the same length of tubular shaft, rectangular is found that hollow rectangular shaft has more bending stress than the tubular shaft.

\section{EXPERIMENTAL METHODOLOGY}

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{image1.png}
\caption{Go-Kart Wheel}
\end{figure}
1.1. Working Principle of Present Work Go-Kart Vehicle:

- The working of this go-kart is very much similar to conventional go-kart which runs by fuel powered engines.

- The accelerator of the vehicle is tied to the button of the driller by a rope at right angle.

- When the accelerator is pressed, the rope is moved forward which in turn pulls the button of the drilling machine, this causes the drill head to rotate.

Figure 2. Methodology of this research work
Since the drill head is fixed tightly along the outer surface of the wheel, it rotates along with the drill head.

II. COMPONENTS AND EQUIPMENT USED FOR MAKING GO-KART VEHICLE

a. Drilling machine

- A drilling machine is an electrical component, originally and principally used for drilling holes and driving screws.
- There are hand drill versions and powered versions (power h).
- Most drills are powered drills with a L-shaped body that holds a button under it. Such drills have a handle, usually a pistol grip, with chucks for attaching a drill bit.

b. Wooden chassis

The wooden chassis forms the basis of this driller drive go-kart. Rectangular logs of wood are used to construct the chassis of go-kart. The rectangular blocks of wood are attached by using bolt & nut. The bolt & nut are used in order to easy assemble and de assemble

c. Wheels

In this project, rubber wheels are used. The outer surface of the wheel is rubber material in order to increase the friction between drill and the wheel.

d. Equipment Set Up

Figure 4. Sample Construction of Go-Kart
III. DESIGN FOR GO KART DRIVEN BY DRILLING MACHINE

![Design Model of Go Kart](image)

**Figure. 5 Design Model of Go Kart**

**a. Procedure For Design:**

- Open AutoCAD software
- Set the limits and zoom all
- By using line command draw the one side of the chassis design
- By mirror command mirror the one side of the object
- By that we get the full design of the go kart

**b. Design Calculation**

- SPEED \( N: 500 \text{ rpm} \)
- TORQUE \( T: 17 \text{ Nm} \)

**c. Calculation of Power**

\[
P = \frac{2\pi NT}{60}
\]

\[
P = 2 \times \pi \times 500 \times 17 / 60
\]

\[
P = 889 \text{ Watt}
\]
IV. CONSTRUCTION AND WORKING

Wooden rectangular system, the frame needs to be very strong and reliable for cornering and handling shocks. The type of chassis is an open. It will power the rear wheel through a torque converter. Engine will power the go-kart which runs by fuel powered engines. The accelerator of the vehicle is tied to the button of the driller by a rope at right angle.

![Figure 5 Making of Go-Kart](image)

![Figure 6 Prepared Go-Kart](image)

V. COST ANALYSIS

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>RATE</th>
<th>QUANTITY</th>
<th>COST</th>
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<tbody>
<tr>
<td>WOOD</td>
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<td>1</td>
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</tr>
<tr>
<td>SHAFT</td>
<td>150</td>
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<td>150</td>
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<tr>
<td>BOLT-NUT</td>
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<td>375</td>
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<tr>
<td>DRILLER</td>
<td>2000</td>
<td>1</td>
<td>2000</td>
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<tr>
<td>BATTERY</td>
<td>300</td>
<td>1</td>
<td>300</td>
</tr>
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<td>---------</td>
<td>-----</td>
<td>---</td>
<td>-----</td>
</tr>
<tr>
<td>WHEELS</td>
<td>200</td>
<td>4</td>
<td>800</td>
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The total cost of the model will be approximately Rs. 4325.

CONCLUSION

Drilling mechanism is used to produce the Go-Kart model. The main goal is to simplify the overall design to make it more light-weight without sacrificing performance and durability. The outcome is a lighter, faster, and more nimble vehicle that improves go kart design. Fabrication of a self-designed, self-assembled Go Kart” is been carried out by our team with diligent and continuous effort. Hence the proposed model of go-kart will be welcomed by many middle class people due to compactness and low cost.

REFERENCES

2. Dr.D.Ravikanth, C.Nagaraja, Dr.K.Rajagopal, Dr.V.S.S.Murthy – Fabrication of a model go kart (nov-2015)
3. Emily Kan & Danielle Miller – Drive-by-Wire Go-Kart (may-2006)