GO-Kart Using PVC Pipes

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***Abstract*— The first go-kart was simply a cart consisting of wheels and handles jointed together as children pushed from behind when learning to walk or a four-wheeler platform where children where children can sit on it while another push the kart around. Go-kart was invented in California by Art Ingles and Lou Borelli using 100cc mower engines and strong steel frames. Then, newly designed karts were beginning to gain popularity in Britain around the year 1959-1960"[1],[3].**

Day to Day it must be effect on our daily travelling with minimum cost, so in order to travel without fuel we design go-kart using PVC pipes under Rs.30,000/- so we hope that our project will have recognized in this competitive world. This report explains how go-kart was made, its objectives and uses etc"[4],[6].

INTRODUCTION

Go-kart has long existed in our world whether it is used for recreation. According to Graham Smith (2002), Art Ingles who was a veteran hot rod and race car builder at Kurtis Kraft in California, America invented the first ever go-kart in 1956. Initially, karting is a leisure motorsport enjoyed by airmen during the post-war period. The sport is quickly caught on with Go Kart Manufacturing Co. Inc. Being the first company to manufacture and distribute go-karts after two years. In 1959, McCullough also jump in the bandwagon of the industry, by becoming the first company to manufacture go-kart engines. Although go-kart originated from United States, it has also gain interests from countries all over the worlds especially Europe"[2],[5].

By design Go-kart we can travel free of fuel because now day the price of petrol is varying day to day'[3],[4]. Go-kart is simply made by PVC (Polyvinyl chloride)

PARTS OF GO-KART:

In Go-kart there are several parts. They are

1. Chassis, 2. Wheels ,3. Motor, 4. Dc motor,
5. Batteries ,6 Steering and other components.

SYSTEMS USED IN GO KART:

As like automobile Go-kart also have various systems like cooling system, lubrication system

WORK HAS BEEN DIVIDED INTO FOLLOWING

- Design
- Braking
- Steering
- Motor

DESIGN:

First of all chassis made by PVC pipes and ply wood sheet. Pipes are marking required size and cut by the axial blade, after cutting pipe in our required measurements we must connect the pipes with couplings and fittings .After that take plywood Sheet same length of the chassis make adjustments as we required bolted with PVC pipe chassis.

BRAKING:
Brakes are used stop the motor to accelerate further more. Brakes are controlled by speed controller. Braking system are considered by which type of DC motor are used.

STEERING:
Steering is also made by PVC pipe with some couplings. speed controller switch is placed on steering for user to access or control the speed of the kart.

STEERING SELECTION:
Two bearings consider for steering
Minimum turn radius is 1.6 m
Maximum turn radius 2.9 m

SELECTION OF MOTOR:

In this Go-kart we are using planetary D.C motor based on our speed requirements. It has high torque with speed 468 RPM

1.Model: PG36M555-19.2K
2.Operating Voltage: 24V DC
3.Rated Torque: 72.6N-cm
4.Rated Speed: 468RPM
5.Rated Current: 2.5 A
6.Rated Power: 61.85W

BATTERY:
We are using lithium ion 12V battery.
Its normal voltage is 12V,
Rated capacity is 7Ah,12Ah,
Internal impedance 250m ohms,
Max charge voltage is 12.6V,
Max charge current 2A

WHEELS:
For Go-kart, we choose 14" bicycle wheels for moving.
There are other types of wheels

1. Shallow Section wheels.
2. Midsection wheels.
3. Road wheel braking surfaces.
4. Clincher road bike wheels.
5. Tubeless road bike wheels.

PWM DC MOTOR SPEED CONTROLLER:

PWM (Pulse Width Modulation) is a method that is used for DC motor control using a micro controller is Pulse Width Modulation (PWM) method. The speed of the electric motor depends on the input voltage. The greater the voltage, that increases the speed of the electric motor.

MOTOR SHAFT COUPLERS:

Coupler is a component used to connect a drive shaft and a driven part, for example, a motor shaft and a ball screw for the purpose of transmitting the torque. Also, Coupling introduces mechanical flexibility providing misalignment for the shafts.

CONCLUSION

This report has been made to simple, to understand everyone easily and design of the project. Go-kart is simple to made or built. It is used to travel short distance, fun racing like F1 races and also there no use of fuels, so pollution free and easy to replace every component if any damage occurs. It becomes more challenging project because it involves so many constraints.

FUTURE SCOPE

Go-kart works on batteries and motors, so we can connect the solar panel for solar energy Because it free from environment and pollution free. And these batteries are rechargeable and replaceable.

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