

# Design and Fabrication of Three Wheel Drift Trike

Poovendran C

(Mechanical Engineering, Sri Krishna Polytechnic College, Coimbatore, India, [cpoovendran@gmail.com](mailto:cpoovendran@gmail.com) )

**Abstract**— this paper deals with the design and the fabrication of three wheels drift trike. Drift trikes are tricycles that have low-traction rear wheels with surfaces of hard rubber. They are designed to drift by intentionally initiating loss of traction to the rear wheels and counter-steering to negotiate corners. They are usually ridden on paved roads with steep downhill grades, corners and switchbacks. The motion of the machine is achieved by transferring the heat energy to mechanical energy through engine (air cooled, 100cc). The basic premise is that a drift trike is an adult sized tricycle, typically with the front fork from a BMX (bicycle motocross) bike, and the rear wheels from a go-kart or buggy tyre. It comes with front drum brake (diameter 80 mm) and rear disc brake (diameter 200 mm). The frame is a rigid and welded one, so it can withstand heavy load in up's and downs of the road condition.

**Keywords**—Drift trike, Three wheel drift

## 1. INTRODUCTION

It explains about the project background, project objective, project scope and the project flow that have been conducted. Besides that, it also consists of flow chart of the project.

- Tricycles are the 3-wheeled vehicles that has two wheels at the rear end.
- These kind of vehicle can be manually operated.
- A three Wheeled vehicle comprises a frame with a rear axle assembly that mounts a pair of spaced rear Wheels.
- Drift trikes are like three wheeled go karts with smooth rear wheels that allow the trike to slide sideways around corners.
- Drift trikes are tricycles that have slick rear wheels.

## 2. ABSTRACT

Drift trikes are tricycles that have low-traction rear wheels with surfaces of hard rubber.

They are designed to drift by intentionally initiating loss of traction to the rear wheels and counter-steering to negotiate corners.

They are usually ridden on paved roads with steep downhill grades, corners and switchbacks.

Drift triking has a dedicated following and is quickly growing in popularity across the globe.

The origins of drift trikes come from New Zealand.

In 2011, a non-profit organization called the American Drift Trike Association was founded in the United States, with the goal of promoting the sport of drift triking.

## 3. OBJECTIVE

Our concept is to fabricate a cost effective drift trike which will be easy to use and safe to ride.

## 4. LITERATURE REVIEW

This chapter explains about literature review of this project work, which includes the theory about drift trike chassis.

Usually a drift trike or owner who want the handling of vehicle will purchase the latest in wheel, tyres and other optional equipment, but end up finding that those things in fact handles worse.

The first stage in achieving a good handling drift trike will provide the greatest percentage of power efficiency is to go right back to basics.

The chassis is the framework of any vehicle. The steering and drive train components such as engine, chain drive, and final drive components are mounted to chassis.

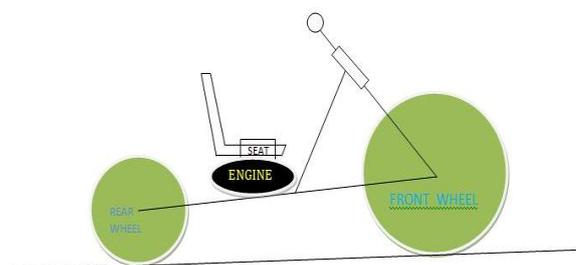
The chassis would have to be strong and rigid platform the suspension components.

Furthermore, the construction of today are vehicle require the use of many different material.

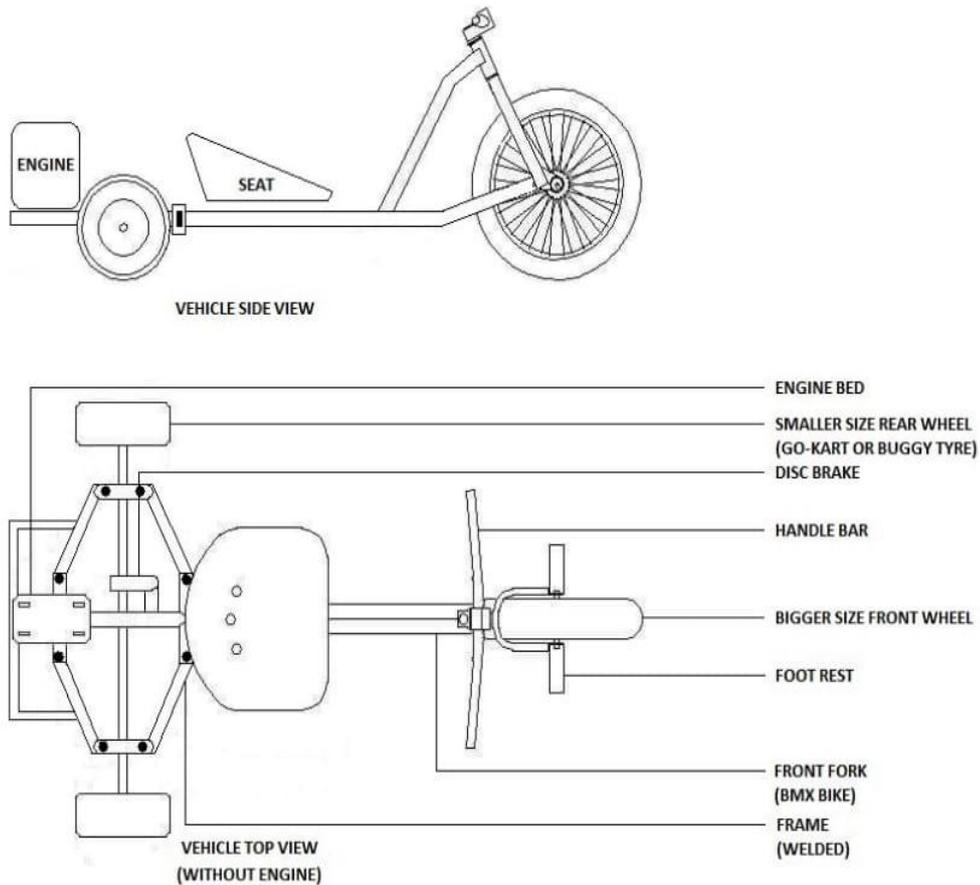
Chassis of drift trike is not much different from normal car chassis; in fact it is much less complicated.

The different in size and weight make drift trike chassis much easier to design and construct.

## 5. BLOCK DIAGRAM



## 6. FABRICATION DIAGRAM



## 7. WORKING PRINCIPLE

a) The three wheel drift trike is a totally new way of transportation. As we (the operator) start the engine the power from the engine is transferred to rear wheels through chain and wheels start's rotating.

b) Handle bars are provided at front to turn the vehicle and to control the acceleration in increasing or decreasing manner also the braking of the vehicle. The gear shift lever are also provided at the left hand side of the vehicle as per the Indian standards, so shifting of gears is simplified through gear rod which is connected to the engine.

c) The footrest are provided at the front fork, so it makes a comfortable and adventures ride quality. The frame is a weightless and rigid structure, so it can withstand heavy loads and cause increase in speed.

d) The frame is not covered with the sheet metal, so it will not resist the air at higher speeds and more aerodynamic shape can be obtained. The plastic seat is provided for rider which is also weightless and rigid one. The cooling of engine is increased as the vehicle is not covered by sheet metal.

## 8. HARDWARE SPECIFICATIONS

### 8.0 FRONT WHEEL AND TYRE SPECIFICATIONS

The specification of front wheel

a) Wheel Size	:	Sixteen Inches
b) Wheel Type	:	Spoke Wheels
c) Front Tyre	:	2.5 X 16
d) Rear Wheel	:	Eight Inches
e) Wheel Type	:	Disc Wheel

### 8.1 REAR WHEEL SHAFT SPECIFICATION

a) Fitting position	:	Rear axle
b) Length (mm)	:	120mm
c) Width (mm)	:	25.4mm
d) Shaft type	:	Solid type
e) Tyre type	:	Tubed

### 8.2 ENGINE

The technical specification of the tvs XL engine.

a) Displacement	:	69.9 cc
b) Number of cylinders	:	1
c) Maximum power	:	3.5bhp@5,000rpm
d) Maximum torque	:	5nm @ 3,750 rpm
e) Bore	:	46 mm

f) Stroke	:	42 mm
g) Valves per cylinder	:	2
h) Fuel delivery type	:	carburetor
i) Fuel type	:	petrol
j) Number of sparkplug	:	1
k) Cooling system	:	air cooled
l) Gearbox type	:	automatic
m) Transmission type	:	chain drive
n) Clutch	:	centrifugal wet type
o) Ignition	:	flywheel magnetic coil
p) Start Type	:	Kick Start
q) Top Speed	:	60 Kmph

### 8.3 CHASSIS SPECIFICATIONS

a) Chassis type	:	mono frame
b) Material	:	mild steel

## 9. CONCLUSION

*In this paper the fabrication has done and the result obtained, the objective of the project is achieved and complete within the planning time. A low cost three wheel drift trike was designed with CAD and prototype has been developed. This project work has provided us an excellent opportunity and experience, to use our knowledge and we gained a lot of practical knowledge regarding planning, purchasing, assembling and machining while doing this work.*

*The main goal was to simplify the overall design to make it more effective without sacrificing performance and durability. The result is a faster and stronger vehicle that improve the drift trike design.*

 RESEARCH SCRIPT

*International Journals*

## REFERENCES

- [1] Er. Vikas Gulati et al, "Design and FEA of a Recumbent Trike", International Journal of Applied Engineering Research, ISSN 0973-4562 Vol.7 No.11 (2012).
- [2] AdedipeOyewole et al, "Design and Construction of a Motorized Tricycle for Physically Challenged Persons", AU J.T. 13(1): 61-63 (Jul. 2009).
- [3] Emma Braegen, Drift Trike Physics and Design
- [4] Patrick Fenner, "On the Golden Rule of Trike Design", Deffered Procrastination, 4 October 2010
- [5] Rickey Horwitz, "The Recumbent Trike Design Primer", Hell Bent Cycles, 2010