



Mahatma Gandhi Missions College
of Engineering & Technology

FABRICATION OF QUAD BIKE

Student name: Aakash Sharma, Abhishek Singh, Akhilesh kumar, Ashish Rawat
Department of Mechanical Engineering



Introduction

An all-terrain vehicle (ATV), also known as a quad, quad bike, four-wheeler vehicle that travels on low-pressure tires, with a seat that is straddled by the operator, along with handlebars for steering control

It is designed to handle a wider variety of terrain (an area of land) than most other vehicles.

Rider sits on and operates these vehicles like a motorcycle, but the extra wheels give more stability at slower speeds.

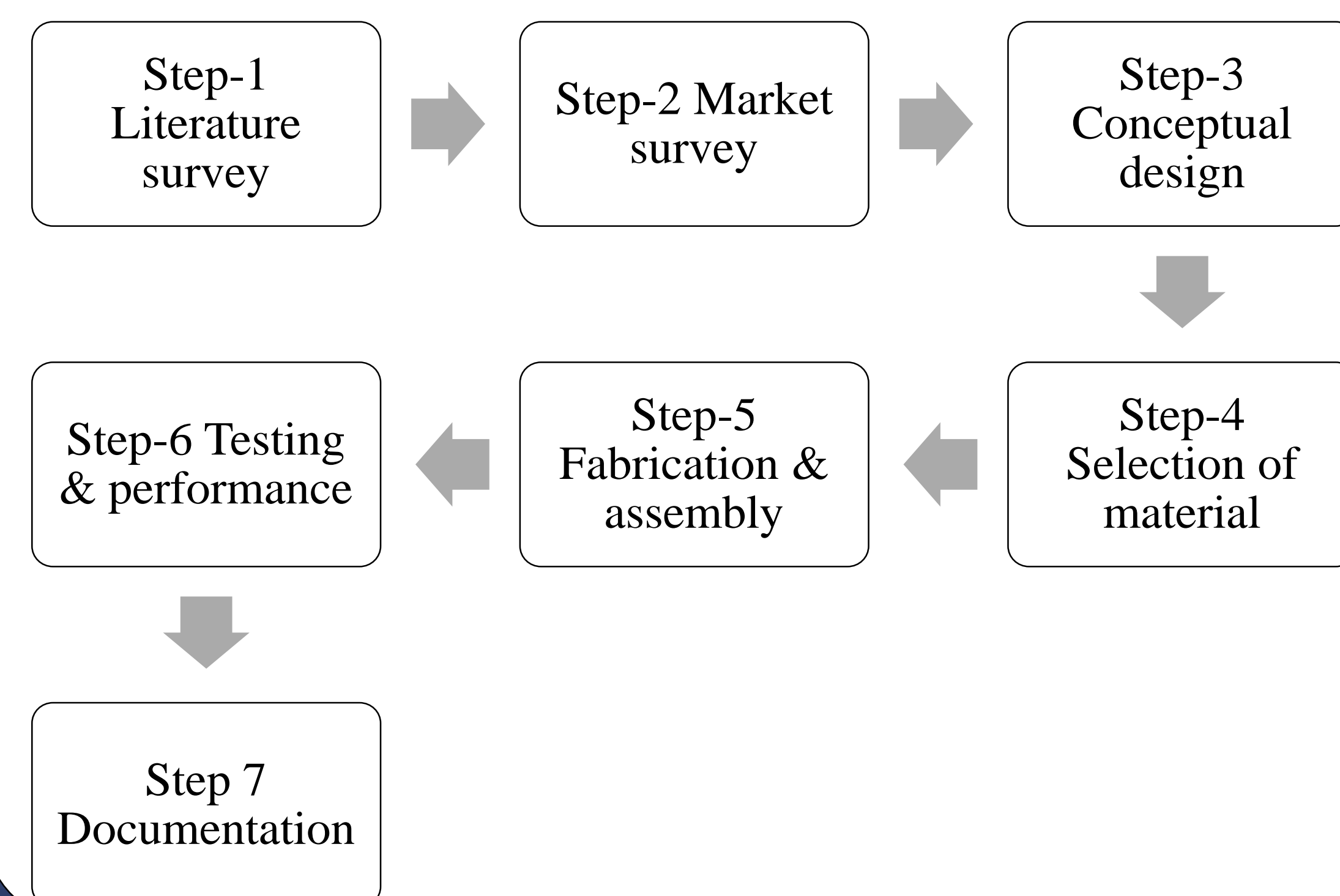
ATVs are intended for use by a single operator, although some companies have developed ATVs intended for use by the operator and one passenger. These ATVs are referred to as tandem ATVs

Project Objectives

In response to the incidence of fatal and serious injury rollovers involving ATV's we install CPD (crush protection device)

- Design of chassis frame for an All-Terrain Vehicle.
- To maintain proper wheel alignment.
- To reduce the overall weight of quad.
- To maintain the effective ground clearance.
- Protect the vehicles from damage and wear from force of impact with obstacles

Methodology



Results and Discussion

- **Suspension Test:** Suspension system work properly on off road track. (1 inch travel).
- **Steering Test:** Steering system work properly (both the front wheel simultaneously steer during steering) at high speed.
- **Brake Test:** Proper locking of the tyres (both rear wheels) when applying brakes.
- **Tilt Test:** In this test vehicle will be tilted at different angles to check any fluid leakage from it.

Design parameters

S.no	Vehicle Specifications	Targets	Achieved
1	Wheel base	At least 42 inches	42"
2	Front track	Max 60" at its widest point.	46"
3	Rear track	Must be At least 80% of wheel base.	31"
4	Ground clearance	Minimum 7 inches	8"
5	Engine	4- stroke (not exceed 250 cc)	4- stroke (150 cc)
6	Brake type	Double Disc brakes	Single Disc brake
7	Suspension	Suspension should be able to provide at least 1 inch of bounce and re-bounce.	1 inch travel
8	Longitudinal direction of wheel	4 wheels that cannot be in a straight line in longitudinal direction.	Rear track is smaller than front track.

IMAGES



Conclusions

- In the fabrication of quad first of all we have successfully design our roll cage and after that we have done mathematical analysis of our front roll cage
- Fabrication of the wishbones which is also a challenging one so we have completed in specified time limit.
- We have successfully check the travelness of the suspension system i.e. 1 inch travel.

References

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GUIDED BY : MR. UMESH YADAV
ASSISTANT PROFESSOR
(DEPT.OF MECHANICAL ENGINEERING)