

ALL TERRAIN VEHICLE

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Abstract- ATV are used for offroad in other country. ATV also known as (All-Terrain-Vehicle). Other name are also known as (LUV) Light utility vehicle. ATV was designed in 1967. ATV as travel in low pressure tyres, seat, and handlebars are used. Its is street legal in another countries. ATV are manufacture because of less amount to spend. Its also used for farming, grocery, transport in other countries.

Key Words: 125cc engine, chassis, four wheels drive, low cost, farmer satisfaction.

1. INTRODUCTION

The term "ATV" was originally generated name in another countries. The atv started by six wheeler and they produced by jiger corporation in 1960. The people are used to framing and transport service. But some people are could not afford six wheeler Atv. 1970s the first 3 wheeler was designed by Sperry-Randtricart. Before that 1967 John Plessimnger is a graduate students he make design of ATV. Number of American manufactures was manufactures ATV on small industries. After that Honda motorcycle company was entered in market at 1969 in America. He also started to make atv in reasonable price.

The market of Atv are grown up. The another company are also involves like Yamaha and Suzuki these are two big company are also start manufacture Atv. In 2008 united states was started to sell atv by engines size (50 to 999)cc. The research on atv which one of the famous Atv in market Notable was a Tiger 500 is fastest and highest selling Atv in US. Tiger 500 produce 42 horsepower in 6500 rpm and give 5 speed gearbox and top speed is 100km/hr. Some people order to custom built for Atv racing.

1.1 Problem Statement

An ATV (All-Terrain Vehicle) bike problem can encompass various issues ranging from mechanical to electrical or even operational challenges. One common problem faced by ATV owners is engine performance issues, such as difficulty starting, idling irregularities, or power loss during operation. These can stem from issues with the fuel system, spark plugs, or air intake. Additionally, problems with the transmission, such as gear slippage or difficulty shifting, are not uncommon. Regular maintenance and proactive problem-solving efforts contribute to prolonged ATV bike performance and rider safety.

1.2 Objective

All terrain vehicle are mainly used for farming and transportation. Atv are budget friendly everyone will be affordable specially farmer.

2. RESOURCES NEEDED

The main components of this system are given below:

- Engine
- Tyres
- Suspension
- chassis
- light

(a) Engine:- An all-terrain vehicle (ATV) typically features a petrol engine designed for off-road use. These engines are usually lightweight, durable, and capable of providing sufficient power for navigating various terrains. They commonly utilize a carburetor or fuel injection system to mix air and fuel for combustion. Petrol engines in ATVs are engineered to deliver torque

at low RPMs, enabling efficient performance in challenging conditions such as mud, sand, or steep inclines. Additionally, they often incorporate features like air-cooling or liquid-cooling to maintain optimal operating temperatures during intense use. Overall, petrol engines in ATVs are integral components that provide the necessary power and reliability for off-road adventures.



Fig -1: 125cc Engine

(c) **Suspension:-** ATV (All-Terrain Vehicle) suspension systems are crucial for providing stability, control, and comfort across varied terrain. Typically, they consist of shocks, springs, and other components that absorb impacts and vibrations. The suspension adjusts to terrain changes, ensuring optimal traction and handling. Different ATV models may feature variations in suspension design, including independent suspension for each wheel or solid axles. Modern advancements incorporate technologies like adjustable damping and electronic controls to enhance performance and adaptability to different riding conditions. Ultimately, an effective ATV suspension system enhances rider safety and enjoyment by smoothing out rough terrain and maintaining stability.



Fig -3 Suspension

(b) **Tyres:-** ATV tires are specialized, rugged tires designed for all-terrain vehicles (ATVs). Constructed with deep treads and durable rubber compounds, they provide excellent traction on various surfaces including mud, gravel, sand, and rocks. ATV tires come in different designs tailored for specific terrains, such as mud tires with aggressive treads for muddy conditions and all-terrain tires with a balanced tread pattern for versatile performance. Proper tire selection is crucial for maximizing traction, handling, and safety during off-road adventures. Regular maintenance, including proper inflation and periodic inspection for damage, ensures optimal performance and longevity of ATV tires.

Tyres



Fig -2: Offroad tyres

(d) **Chassis:-** An all-terrain vehicle (ATV) chassis is the structural framework that supports all other components of the ATV, including the engine, suspension, steering, and bodywork. Typically made from steel or aluminum, the chassis is designed to withstand rugged terrain and provide stability and durability during off-road adventures. It forms the backbone of the ATV, dictating its overall strength, weight distribution, and handling characteristics. ATV chassis designs can vary widely depending on the intended use, with some optimized for racing performance while others prioritize utility and versatility for recreational or work purposes.

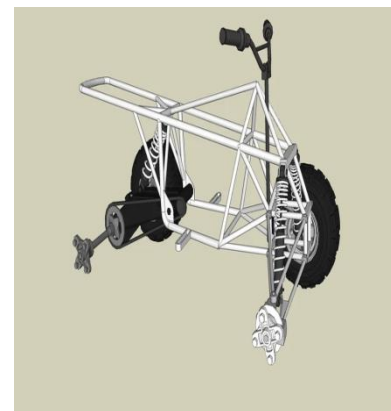


Fig-4 Metal Chassis

(e)Light:- ATV light, essential for night rides, provides increased visibility in low-light conditions. Designed for durability and efficiency, these lights often utilize LED technology for long-lasting brightness. Mounted strategically on the ATV frame, they enhance safety by illuminating the path ahead, ensuring riders can navigate through various terrains with confidence.

Light



Fig-6: Ligh

4.Conclusion

This All Terrain Vehicle we made for farmer. Who take advantage of low budget . We use in farming , transporation , offroad , etc . With this low-budget ATV, farmers can now enhance their productivity and efficiency without breaking the bank. That why we made budget All terrain vehcile for used for farming . In this budget we represents modern equipments for agricultural . We are empowering for farmer to achieve their success.

5.REFERENCES

1. <https://www.offroad-ed.com>
2. <https://www.yamahamotorsports.com/atv>
3. <https://www.indiapolaris.com/>
4. <https://www.amazon.com/QuadBike/s?k=Quad+Bike>

3. LAYOUT OF THE ATV:

