

5 wheeled car

Innovator: Master. Manoj and Master. Harimohan Saini

1. The context of use

The innovators, wanted to develop a low cost car for the rural masses, who could not afford the traditional high priced commercial models. They also wanted to develop a car, which was not more than 4 feet in width so that it could travel alongside other vehicles in narrow 10-12 feet wide rural roads.

The vehicle developed by the innovators is designed to a bare bone model with low cost of ownership and operation. It is a narrow but long model hugging the ground, which can seat 4 people on it.

2. Working principle

The key principle incorporated is that the reduction in the number of transmission stages will increase the efficiency and the drive is directly given to the additional central fifth wheel, which is the driving wheel. The car has no gear systems and has a simple braking mechanism.

3. Innovation highlights

Power from engine is transmitted directly to the driving wheel, which is the fifth wheel, fixed at the center of the car. All the four normal wheels are free wheels.

This eliminates need of differential and axle as well as reduces loss of power.

4. Compare innovation to competing products by efficiency, cost and utility

- It is expected that due to reducing two stages of power transmission the losses will be less than the available car.
- Due to single drive wheel, the force developed will be less, hence upper speed will be limited
- Due to elimination of differential and axle, it will be a barebones model with substantial cost reduction.

5. List the current and proposed applications of innovation

- It is developed to be used by primarily rural people in lower income group who need a basic functional vehicle to commute or carry agricultural produce.
- Could be used after adding colors, bells and whistles for joy rides in fun parks and amusement parks
- If developed successfully, it can be used by large factories/industries/organizations for medium speed in plant transportation similar to golf carts.

6 Brief descriptions of construction mentioning major parts

The five-wheeled car was developed using available materials. The car comprises of five wheels. Scooter wheels have been used The chassis is made of commercially available nickel polished pipes, a moped (LUNA) engine has been used, the steering is made with simple mechanical linkages, mechanical brakes and accelerator similar to jeep and other vehicles.

The front and rear wheels are free wheels, while wheel at the center (fifth wheel) is driven wheel. Use of fifth wheel concept may help in eliminating cost of differential. The developed car does not have gears.

The prototype car has been tested and driven at the village with three to four persons riding on it

7. Current design shortcomings and further work planned

Further work planned by the innovator includes using a more powerful engine (such as CT-100 Bike engine) and incorporate the gearbox.

The innovators are targeting the cost of that car to be within 55,000-60,000 and a maximum speed 75-80 km/h with the average fuel consumption in the range of 45-50 km/l, against 18-20 km/l of the available cars. It is expected that the use of gearbox will increase climbing ability of car. Further work planned includes providing a jack system with spring at center so that, whenever the car find it difficult to come out from mud, the driver can lift up the rear portion slightly with the help of jack system.

8. List of accessories if any and their functions

9. What is the need/benefit of this product for local community?

The barebones ground-hugging vehicle has versatile potential- as a low cost vehicle for options ranging from giving fun rides in amusement parks and in plant transportation of people in large factories to lugging agricultural goods and one or two people in rural areas

10. Any special highlights of the innovation or additional information

The road hugging flat vehicle with its minimalist frame is being used by the innovator and is quite a spectacle traversing in rural roads alongside large bulky tractors and trucks and slim bicycle and slow ox carts.