

**TREADMILL BICYCLE**Kale R.D.¹, Khedkar A.K.², Pathare P.P.³, Shete N.N.⁴, Mr. Abuj D.¹ Mechanical Engineering Jaihind Polytechnic, Kuran, Maharashtra, India.² Mechanical Engineering Jaihind Polytechnic, Kuran, Maharashtra, India.³ Mechanical Engineering Jaihind Polytechnic, Kuran, Maharashtra, India.⁴ Mechanical Engineering Jaihind Polytechnic, Kuran, Maharashtra, India.⁵ Mechanical Engineering Jaihind Polytechnic, Kuran, Maharashtra, India.

Abstract — Treadmill bicycle is exclusively advanced way of moving. This paper deals with conversion of conventional bicycle into walking bicycle. This project work to better fitness of user. This project desired for humans who love to run outside. When users walking on bicycle he push treadmill belt backward due to it bicycle is propel in forward direction. With electric assist it takes no more effort to walks rather than walk on the track. The dynamo is connected to rear wheel. By using accessories like gear, braking system and electronic devices we can accelerate regulate as well as decelerate speed of bicycle. Our project contributes to make environment pollution. Our aim to make vehicle that is faster than walking and easy to ride than bicycle.

Keywords-[Treadmill, Fitness, Treadmill Belt, Bicycle, Axle, Gear]

I. INTRODUCTION [10pt times new roman, Bold, Uppercase]

For promoting health exercise is necessary. One can spend a lot of money for aerobic exercises like walking, cycling at gym. People with a busy schedule will also be able to take care of their health and physical fitness.

The treadmill bicycle is combination of treadmill and bicycle. Typically using a treadmill basically is similar to running, hiking or walking. Since it uses no fuel it a very conventional option for people in their busy schedule to take care of their health completely

As we all know a manual treadmill does not consume any external feul supply, thus using treadmill belt and some arrangement of gears and chain drive, we make a treadmill bicycle. It is completely manually operated. As the user walk on the treadmill the belt moves to the rear side and rotate rollers of treadmill which gives the starting torque. Gear assembly get sufficient is also connected to the roller shaft which whole assembly gets sufficient torque and moves treadmill ahead. The arrangements of gear which will be improve speed of the bicycle to normal bicycle.

This can be used for enjoyment like picnic, road trip, and local nearby transportation with some fitness.

II. LITERATURE REVIEW**Kachare jaydeep**

This paper deals with conversion of a conventional bicycle into treadmill bicycle. In this bicycle the frame of the bicycle is completely modified and the treadmill is placed in between the two wheels, on which user will walk. As the user walks or runs on the treadmill the belt moves to the rear. At the rear roller RPM Sensor is attached to the roller from where Sensor will sense the speed of the roller and accordingly it will send signal to motor. The motion of motor is transmitted to the front wheel by which we can get the motion of wheel and bicycle runs. [1]

Wagh Ganesh Sadashiv

Trademill Bicycle is one type of bicycle in which a man walks on the trademill and then trademill moves backward. The motion of treadmill bicycle is depend upon the human efforts so it is also called as walking bicycle. Multipurpose trademill bic ycle consists the parts like wheels, treadmill, battery, sprocket, chain drive, and dynamo. [2]

Pranav Gujar

The following paper deals with conversion and combination of a conventional tricycle and the most popular home exercise equipment, the treadmill, into a commuting vehicle. In this tricycle, the frame of the tricycle is entirely modified and treadmill is placed between three wheels, on which the user will run. As the user walks or runs, the belt moves over the rollers that are attached to the shaft with a chain drive. This chain drives the rear wheels of the tricycle which produces motion for the front wheels and thus the tricycle runs. [3]

Prabhjot Singh

“Treadmill Bicycle” is a work which is done to save our precious environment which is destroying and disturbed day by day with the increase in pollution emitted by vehicles and industries. While the innovations are going all around, our team has applied innovation to the vehicle makes it more unique than any vehicle currently in the mainstream markets.

As we all know ozone is depleting day by day, we thought to make such vehicle which is free from the Exhaust of particulate matter (PM) and harmful gases such as NO_x (oxides of nitrogen), CO (carbon monoxide) etc. Our works basically an Eco-Friendly Bicycle. It is based on Future innovative vehicles. We just want to create “A New Way of Moving”. It is a fun and environmental friendly way of transport. We have motto behind this project that everyone can jog without getting their shoes dirty. A person from any age can drive this bike. Moreover it has the same looks for both the Men and Women. People can drive this bike in any dress rather a traditional Indian dress or Western dress. The idea behind this bike is how we can use treadmill outside the Gym. It takes no more effort to walk “than a walk in a park”. All other innovations in transport results in increasing costs of Vehicles but our motive is to bring back the basic mode of transport back on roads i.e. bicycle in a newer way in an affordable price as compare to other vehicles.[4]

V.R.Ghandhewar

In an ancient days concept of treadmill was invented for generating mechanical energy with the help of animals such as horse, dogs etc. First treadmill was introduced by Roman Empire for heavy loading like conveyer belt which we use in industries. Some of those invention required electric power for initial torque. After study the history of treadmill bicycle we get idea to develop new concept of treadmill which will manually operated so that no external energy source is required to run treadmill bicycle. Our main objective while developing this concept is ‘A Treadmill with more outputs in less time along with surface cleaning’.[5]

III. PROBLEM DEFINITION

- The treadmills are heavy in weight and stationary at the gym so people get bored while running on it.
- Treadmill is no longer way mobilize farm operation, but an effective exercise alternative for challenge like weather, hectic schedule and physical limitation busy street and crowed area.
- In our day to day life the people mostly uses of cars, bikes, etc to get pollution prevent in environment pollution and fuel pollution.
- People who travel in near by offices below 5-7 Km they can used treadmill bicycle.

❖ **DESIGN CALCULATION**

Sr. No.	Component	Material	FOS	Working stress (MPa)	Dimensions (mm)
1	Chassis	Stainless steel 304	3	61.59	35
2	Fork	Stainless steel 304	4	42.09	40
3	Bicycle axle	SAE 1010 Steel	3.5	65.12	10
4	Handle	Cast Aluminium alloy	2.5	83.77	25
5	Treadmill axle	Stainless steel	3	13.14	12
6	Roller	Mild steel	5	38.24	20
7	Side frame	Aluminium alloy	3	10.83	70 30

❖ **SELECTED COMPONANT**

Sr. No.	Component	Type/ Material
1	Dynamo	
2	Bearing	Deep Groove Ball Bearing
3	Belt	Polyvinyl Chloride + Nylon
4	Brake – Front – Rear	Disk – Drum
5	Suspension	Telescopic Fork Suspension
6	Tyre	Rubber

IV. CONCLUSION

By observing above information we conclude that,

- Treadmill bicycle perform multi operation in minimum time.
- Treadmill bicycle is completely manual operated.
- Treadmill bicycle does not used any organic fuels so it is ecofriendly.
- Treadmill bicycle does not promote any type of pollution.
- Treadmill bicycle provide more exercise with travelling.

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