International Journal of Advance Research in Science and Engineering
Volume No.07, Special Issue No.01, March 2018
www.ijarse.com
IJARSE
ISSN: 2319-8354

ELECTRONIC WALKING BIKE

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ABSTRACT

This paper deals with the conversion of conventional bicycle with the treadmill bicycle. Electronics is Playing Vital role in an almost all fields.Now a day everybody is has busy schedule.Due to busy schedule, sometimes physical exercise may not be carried out.With the help of new technologies, the certain exercise equipment's can be produced which will create the interest to people to carry exercise and by using these technologies we can consume less time and more exercise will be carried out.Exercises are advised for health promotion and prophylaxis for many cardiovascular diseases and also for rehabilitation after an episode of disease. Basic idea behind this project is to develop a treadmill bicycle equipped with an electronic system with measuring Heartbeats of the person, measures the burned calories during exercise, and indicates the speed. The bicycle should work easily and ecofriendly. It allows you to stay physically active while travelling at the same time. You can practically exercise at any time of the day. If you drive out often you get to exercise just as often. You are basically complete your both needs at same time.

"We aspired to build a vehicle that is faster than walking and easier to ride than a bicycle".

Keywords:Electronic Bike, ExerciseBike, Pollution Free Bike, Time Consuming, Treadmill.

I. INTRODUCTION

Exercise are advised for health promotion, and for cure many diseases and also for rehabilitation after an episode of disease. Among the exercises aerobic exercises are appropriate for these purposes. To do aerobic exercise many methods are available for example: running, jogging, walking, cycling and others. Among different modes of exercises in the modern busy life, the cycling and treadmill exercises are the commonest to perform as indoor aerobic exercises. In motor driven treadmill exercise which is similarly to walking or jogging or running depending upon the speed of the treadmill motor is becoming more familiar to all. Thus we made an innovation to take that treadmill in park. This is nothing but having a walk in a park.

The electronicbicycle (e-bicycle) which is more feasible can be used for daily use. The hard wearing belt attached to treadmill also offers grip so you don't have to worry about slipping or falling. So you can do more exercise in less time. The electronic circuitry of bicycle also shows the heart rate per sec. and it displays the speed of bicycle and

Calculates calories burned during travelling. It also provides an emergency switch which will stop the bicycle in emergency case during travelling you get the information about your health. In this way the electronic bike contributes in purpose more exercise in less time.

II. PROBLEM STATEMENT:

- While working out in gym people use treadmill. The main disadvantage of this treadmill is, it is stationary, and also there is no natural atmosphere for exercising.
- On another hand we have commercial vehicle which consumes mare fuel and due to this it create pollution. Also the maintenance of a vehicle has high cost.
- Another option we have is bicycle, but bicycle does not provide more speed and more physical energy required to drive it. Also we tired of driving it if we have to reach at long distance then we can't use a bicycle because of its slow riding and more energy requiring.
- So, we came to a solution for this problem by providing wheels to the treadmill and the treadmill is placed between the two wheels and also the motor is provided so we get the speed as regular bike and this concept is termed as Walking Bike.

III. OBJECTIVE

- Pollution Control and Echo-Friendly.
- Reduce use of non-renewable energy sources.
- Measure Heart beats, Speed, Calories.
- Less Time consuming.

IV. SCOPE

The treadmill bicycle is totally new way of moving. We make the treadmill bicycle with the same fat burning benefits of regular treadmill. We ensure to travel the treadmill which is stationary at gym. With the help of this electronic walking bike we can also continuously measure our heart beats during travelling and also speed at same time. We can also calculate the calories burned during travelling or exercising. The hard wearing belt used for treadmill will offers grip so you don't have to worry about slipping. This bicycle will save our lots of time, it is less time consuming bicycle. It doesn't use fuel so automatically it reduces the use of non-renewable energy sources. We can also use it as only treadmill and also only bicycle. It will give the speed same as our regular bike. So we can also treat it as bike. It is also very feasible in traffic. It has also break so you can stop the bicycle at any time also it comes with accelerator so you can manage your speed according to your purpose. It gives the special emergency switch which wills helps you in emergency case by pressing this emergency switch the motor will stop and result the bicycle also stop at that time.

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V.CONCEPT OF WALKING BIKE

We find some drawbacks in our present system so we made the idea of electronic walking bike which is a combination of a bicycle and treadmill. The special time which is given in gym on treadmill for exercise purpose this time will reduce by using this bicycle also this bicycle is eco-friendly. So with the help of this bicycle we consume less time and less pollution and more exercise.

5.1. DRAWBACKS IN PRESENT SYSTEM:

- A Bicycle required more force and physical strength to drive it and it gives slow speed.
- A treadmill is stationary and more time consuming, it burns calories but you didn't get natural environment. It also acquires more.
- A vehicle uses fuel source which creates pollution and which is harmful to human.

5.2. PROPOSED WORK:

Considering the above issues we develop a system called Electronic Walking Bike or Treadmill Bicycle.

Fig.1 Proposed work of Treadmill Bicycle

The above fig.1 shows the Treadmill bicycle which is a combination of a bicycle and treadmill. By considering the drawbacks in the present system we combine benefits of both the system and remove the drawbacks. So at the result walking bike is formed with the benefit of treadmill for exercise and bicycle which gives benefit of

travelling at same time. The fig shows the model of walking bike in which treadmill has hard wearing belt. At the back wheel of bicycle a motor is attached which gives us speed as regular bike. An accelerator is provided at the handles so we can control the speed. Here tread belt is attached at the middle of the treadmill and by pushing and applying force on that tread belt we can move the bicycle but when we get tired we can use motor and accelerator so we don't have to apply force on tread belt.

VI. MECHANICAL ARRANGEMENT

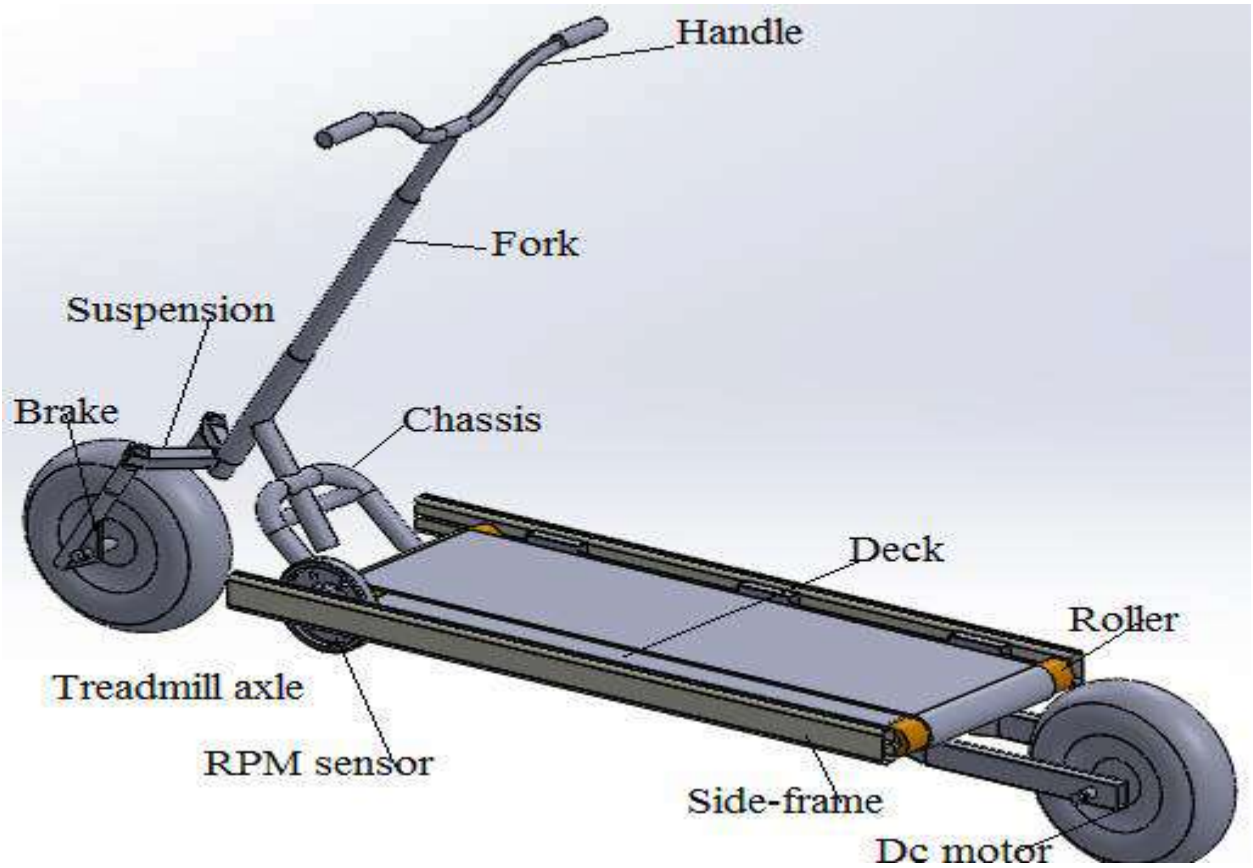

Fig.2. Mechanical Arrangement of the Walking Bike

- The above fig.2 shows the mechanical parts of the bicycle. The components we designed are the chassis, fork, axle of bicycle and treadmill handle, treadmill roller and side frame of treadmill.
- The treadmill bicycle consist of two wheels of bicycle in between that wheels we join the treadmill with the help of chassis then roller is attached to back wheel of bicycle. The roller is rotates the treadmill belt, and due to rotations of the treadmill belt the bicycle is moving.
- At the back wheel of bicycle a BLDC motor of 48v is attached which will gives speed to bicycle, and when we don't have to push treadmill then by using this motor we can travel the bicycle.

- A suspension and break system as in vehicle is provided for stopping the bicycle. The treadmill belt gives the hard grip so there is no worry about slipping and falling.
- The side frames of the bicycle are attached with small wheels for balancing purpose. The handle of the treadmill is consisting of also accelerator so you can manage the speed slow or fast. The handle is connected by using fork as shown in fig.
- Also there is 4 batteries each of 12v is placed on the side frame of the bicycle to drive the motor and motor will drive the bicycle.

VII. ELECTRONIC COMPONENT ARRANGEMENT:

Fig.3. Electronic Components Arrangement

Fig.4 shows the circuit diagram of electronic system used in our project. We are using the microcontroller AT89S52 for controlling various sensors. The circuit shows the speed sensor and heart beat sensor is connected to microcontroller. The input from sensors is given to controller and output from controller is displayed on display which is further connected to controller 89s52. Then the two relays are connected to controller which is useful to drive the motor and used in breaking system relay we used here is sugar cube relay. Then battery is connected to power supply then it is connected to controller which gives supply to controller. The speed sensor will sense the speed of bicycle continuously while driving and heart beat sensor will sense the pulses and display the heart rate per sec. An emergency switch is also provided which helps to stop the bicycle in emergency case. When we press this switch which is connected to motor after pressing it will stop the motor and automatically it will stop the bicycle at that time.

VIII. CONCLUSION

So we develop an electronic system which consumes less time gives information about our health and which improves our exercise with travelling and make pollution free travelling is called ‘Electronic Walking Bike’. It

also reduces the use of non-renewable energy sources so it fulfills all the requirements of travelling and makes safe and healthy travelling.

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