

Handfree Vehicle for Disabled

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Abstract— The present specially designed vehicle for the physically challenged person which can be driven and controlled by legs in which the steering control is transferred from hand to leg by the technical modification. The whole embodiment of the invention function dependently with all technical configuration of hollow and solid shaft, ball bearings, teathed wheels, gear chain, and circular plate, electrical, additional wheel and other integral components. The technical field relates to the hand free motorbike for the physically challenged person. More specially the invention relates to foot control steering plate incorporated with ignition system, accelerator and brake pedals comprising electrical indicator (Sound horn, Flash and Direction lights). The invention further provides two additional wheels for the safety balance which is integrated to the rear end. In the present generation the automobile usage all over the world is increasing phenomenon in which particularly vehicle to them. The existing vehicles for physically challenged person mostly available for persons with both hands so to address this problem, the present invention introduced with an all driving features functioned by legs which facilitated the hand less person to self-drive the motorbike.

Key words: Shaft, Bearing, Chain, Sprocket, Wheels, Motor

I. INTRODUCTION

This project was inspired by those with interests in cars, driving, or car racing who at some point in their lifetime lose their hands. This handicap can be attributed to a number of events including car accidents, diseases, or injuries in military service. Hundreds of thousands of individuals live with hand disability in the United States, and permanent prognoses of hand injury are common. From amputation, birth defect, spinal cord injury, and hand trauma, those who have lost hand function have also lost a large portion of their freedom of mobility. It is estimated that 250,000-4000,000 individuals in Unites States are currently living with spinal cord injuries. In this group of people there is a 4:5:1 male to female ratio, the average age is 33:4, the median age is 26, and the mode age is 19. Motor vehicle accidents account for 44% of the injuries followed by acts of violence and falls at 24% and 22% respectively (Spinal Cord Injuries Facts and Statistics). Racing legends Alex Zanardi and Clay Regazzoni were both severely injured in racing accident. Following their injuries, there was a long ladder to climb to get back to racing. Alex Zanardi has successfully returned to competitive touring car racing on the international level in ahabd-interfaced BMW 320si(Nothing is Impossible: Alex Zanardi, 2012), and clay Regazzoni successfully competed in the most infamous rally in the world, the Dakar, with a hand operated rally truck. Advances in assistive drivers such as Alex and Clay to be competitive again in varying form of racing, but their resources are not available to most people affected by their handicap. Car enthusiasts, servicemen and women included, may find themselves suddenly unable to drive due to an immobilizing injury. These individuals may need an assistive to operate their automobile again.

II. CONSTRUCTION

A hand free bike is a three wheeler moped vehicle design to facilitate the mobility of physically challenged person especially for the hand less persons with all driving functions accessible by legs covering ignition, steering, acceleration, brake and Indicator .In that We used chain drive transmission for steering the vehicle .Sprocket having larger diameter used to steer the vehicle in absence of handle. And that sprocket is covered with a disc as a steering vehicle. Brake and acceleration is connected to same. For brake we used brake pad operated by legs only another sprocket which having small diameter is connected to front wheel.

III. WORKING

As other bikes having handle for steering the vehicle but we used disc as steering wheel. When we rotate the disc vehicle get steered. The main principle of working of this bike is using chain drive transmission, we rotate the disc by legs and once we rotate the disc vehicle will steer accordingly. Brake and acceleration is attached to the disc to operate the brake and acceleration operation. For brake we used brake pad operated by legs and acceleration is operated by legs only.

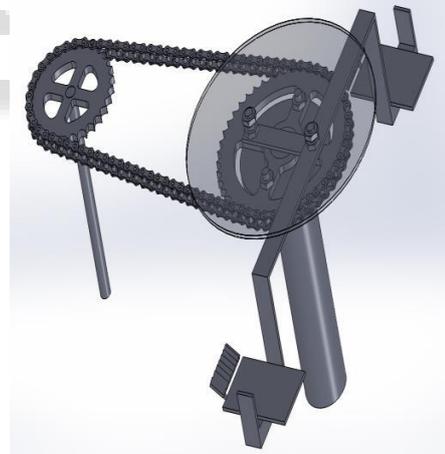


Fig. 1: Working

IV. ADVANTAGE, DISADVANTAGE AND APPLICATION

A. Advantage

- Hand free bike.
- All functions are operated by legs.
- Compact structure.
- Economical.

B. Disadvantage

- Brake, steering, acceleration all functions are operated by legs. Person should have good sense of human to operate this function.
- Practically it is challenge to drive this bike.

C. Application

The technical field relates to the hands free motorbike for the physically challenged person. More specifically the invention relates to foot control steering plate incorporated with Ignition system, accelerated and brake pedals comprising electrical indicators (Sound horn, Flash and Direction lights).The invention further provides two additional wheels for the safety balance which is integrated to the rear end.

V. PRIOR ART

In the existing technology the automobile companies manufacturing vehicles for physically challenged person with side wheels and other auxiliary modes which are not suit to the specific disabled persons to self-drive. Further substantial need for self-controlled driving for hand less persons is interested but no advancements have been done in the prior art in an effective way. Furthermore the existing vehicle for physically challenged persons is not satisfied the restricted use of limb in control mechanism for a driver that need use of legs alone which is much rider friendly particularly for the hand less persons.

VI. CONCLUSION

- We designed vehicle for the physically challenged person which can be driven and controlled by legs in which the steering control is transferred from hands to legs by a technical modifications.
- We designed bearings, chain drive, shaft and body cage.

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