DESIGN AND FABRICATION OF FAIL SAFE SEGWAY PERSONAL TRANSPORTER

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Abstract: The purpose of the paper is to design and fabricate a fail-safe Segway Personal Transporter (PT). This seaway was designed to overcome the cost of the actual segway and to provide zero pollution within the campus and also this seaway doesn’t use the gyro unit which keeps the segway in the flat position instead this is achieved by the supporting wheels which we will be seeing in detail

Keyword: Zero pollution, Fail-safe, gyro unit.

I. INTRODUCTION

The aim of the paper is to design and fabricate the fail-safe seaway personal transporter the gyro unit in the seaway help it to stand flat from the ground which avoids the tilts when the seaway is in motion and in our design we have added supporting wheels which does not allow the seaway to topple while in motion because if the gyro unit fails or if the seaway is bent beyond a point there is a chance of fatal accidents hence we have come up with this design and taking the cost into account the original seaway cost around 3 lakhs plus tax where as the fail-safe seaway cost around 10,000 since it has a minimal of components which in no way hinders the functioning of the same

II. FRAME

The frame is the most important part of the seaway it is designed in such a way that the seaway wheels are guarded from the obstacles and has a platform for the driver the detail view of the seaway frame is shown in Fig 1 and 2

Fig1: Frame of the fail-safe seaway personal transporter
Fig2: Frame and supporting wheels of the fail-safe segway personal transporter

III. HUB MOTOR

The fail safe segway uses the internal hub electric motor which is used in the electric scooter and the throttle is given using the accelerator this motor has a specification of 48v and runs at a top speed of 60 kmph as shown in Fig3

Fig3: The In-hub motor of the electric scooter

IV. BRAKING SYSTEM

The fail-safe segway uses the brakes for turning left and right that is if the segway needs to turn left the left side brake is applied and the segway turns left and the accordingly for right since the in hub motor comes with an braking system it is easy to assembly the system the braking system.
V. POWER SOURCE

The power for the segway is given by 4 batteries each of the specification of 12v and 40 amps/hr Final assemblies Fig5

VI. CONCLUSION

This design and fabrication paper on fail-safe segway personal transporter is aimed at providing a zero pollution environment within the campus and cut short on the costs of the actual segway this also provides solution for making the segway topple safe this paper has wide scope for research in the braking and supporting systems. We have reduced the cost from three lakhs to ten thousand but with little more updating the segway can be turned into a full fledge personal transportation with an cost of twenty five thousand Cad model.

VII. FABRICATED MODEL OF SEGWAY

Fig5: The fully fabricated fail-safe segway personal transporter
VIII. DESIGN AND CAD MODEL

Fig6: 2D model of the fail-safe segwag personal transporter

Fig7: CAD model of the fail-safe segway personal transporter

REFERENCES


