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PROJECT REPORT ON

RECUMBENT SMART WHEELCHAIR USING IR SENSORS FOR OBSTACLE DETECTION AND RISK AVOIDANCE

Submitted in Partial fulfillment of the Requirements for 8th Semester

**Bachelor of Engineering
in
Telecommunication Engineering
by**

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ABSTRACT

Independent mobility is critical to individuals of any age. Children without safe and independent self ambulation are denied a critical learning opportunity, which places them at a developmental disadvantage relative to their self-ambulating peers. Adults who lack an independent means of locomotion are less self-sufficient, which can manifest itself in a negative self image. A lack of independent mobility at any age places additional obstacles in the pursuit of vocational and educational goals.

In our prototype titled recumbent smart wheelchair, the main objective is to design a system that provides efficient risk management eliminating the dependency on caretakers or family members. The aim of this project is to design and develop a system which allows the user to interact with the smart wheelchair at different levels of control for obstacle detection and collision avoidance. Here, simple switches have been provided for controlling the movement of the wheelchair in all directions, forward/ backward/ left/ right.

Another additional feature that has been incorporated during the design of this wheelchair is that the wheelchair can be transformed into a bed with just the push of a button. Keys have been provided to adjust the angle of inclination of the backrest and the front panel as desired by the user. To further increase the safety, a buzzer has been provided so that the user can alert the people around him during emergencies. Also, a LED is mounted on the wheelchair which can be switched ON/OFF whenever the surroundings are dark.