



**INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI  
SHORT ABSTRACT OF THESIS**

Name of the Student : Chinmaya Krishnan G

Roll Number : 196105002

Programme of Study : Ph.D.

Thesis Title: **“A Study on Design Interventions for Long Distance Buses with Reference to Elderly Pilgrims in India”**

Name of Thesis Supervisor(s) : Prof. Debkumar Chakrabarti

Thesis Submitted to the Department/ Center : Design

Date of completion of Thesis Viva-Voce Exam : 18/ 07/ 2022

Key words for description of Thesis Work : Automotive Ergonomics, Inclusive Bus design, Long Distance Travel fatigue

---

**SHORT ABSTRACT**

This study aims to bring light on the factors contributing to the physical as well as mental comfort for a pilgrim (especially elder travelers) with a qualitative assessment of the requirement, needs and expectations of these fellow passengers while doing long distance journeys in buses, because the aspect of comfort gets dominant in long distance travel.

The study primarily done with a group of surveys with elderly pilgrims and also using direct observation studies, as comfort being a subjective factor, and the best way to assess one's comfort is to take direct feedback from them. There were four different surveys to assess the existing issues which served as a platform for existing system feedback. The first survey was consisting of feedback about different aspects like seat system, different pain regions after a long travel, other factors contributing to the aspect of perceived comfort like interior colour theme and convenience amenities needed etc. The second was concerned about the influence of driver behavior in perceived comfort of passengers. The third one was to analyze the hand grip strength to serve as a reference data for designers. And by study four, we analyzed the existing bus platforms to assess the suitability of them for serving elders doing long journeys.

After all these studies, we found some serious issues with the present system designs and we tried to find some solutions to some of these issues in the form of design interventions. After taking due feedback from the stake holders, a modular design approach is proposed. This caters the need of passengers with variable choices or preferences as well as meets the economy constraints.