

Department of Computer Science and Engineering (CSE-2)

A.Y:2025-26 IV B.Tech Odd Semester Y22 Batch

Capstone Project – I Abstract Proforma

**Date: 21-07-2025**

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| **Batch Number: 273**  **Project Usecase no:** | **Project Title:** TARES: A Game-Enhanced Tangible Augmented Reality System for Mastering English Spelling with Minimal Cognitive Effort | | | **Guide Name: Dr. Ramesh Dasari**  **Guide emp. Id: 4821** |
| **Project Abstract:**  Spelling lessons have long been an essential part of language development, commonly incorporated into educational curricula to improve students' spelling abilities. Traditional teaching methods often involve writing and memorization, which can be challenging for some learners, leading to anxiety and feelings of isolation. This issue is especially significant in preschool education, where a more engaging and interactive learning approach can be highly beneficial for children who struggle with spelling. This study introduces a screen-free spelling learning system designed to reduce young learners' exposure to digital screens while enhancing their spelling skills. The proposed system features a virtual-augmented interface that integrates tangible objects with interactive game elements. By using tangible interactions as the primary learning medium, the system ensures accuracy without requiring children to handle digital devices. The framework combines augmented reality, tangible user interfaces, and serious game-based learning principles. With the help of 3D Unity and Vuforia technology, the system creates an interactive spelling experience through augmented reality and game-based elements. This approach highlights the significance of using physical letters and real-world objects to foster cooperative and social learning. The learning content is specifically designed for children aged 4 to 6, ensuring cognitive load remains manageable. To enhance engagement, the system introduces three levels of difficulty, corresponding to words with three, four, and five letters. This structured methodology not only improves spelling proficiency but also addresses the concern of excessive screen time in early childhood education. Index Terms: Augmented reality, cognitive load, screen-free language learning, tangible interactions.  **To be filled by the Guide:** | | | | |
| **Student IDs:** | | **Attendance** | **Student’s Understanding Level on Project**  **(V. Good: 10-8M Good: 7-6M Average: 5-4M Poor: 3-0M)** | |
| 2200031729 | |  |  | |
| 2200030199 | |  |  | |
| 2200032537 | |  |  | |
| 2200032965 | |  |  | |
| Guide Remarks:  Guide Signature: | | | | |