



Speaks

CSCI 409 - Senior Project Presentation

Adviser: Anara Sandygulova

Prepared by: Zhakhangir Temir



Outline

- Brief Introduction & Motivation
- What We Built
- Evaluation Methodology
- Key Evaluation Results
- Live Demo of Final Deliverable
- Conclusions & Future Work

●●● Introduction

What Is PECS?

PECS (Picture Exchange Communication System):

- An augmentative and alternative communication method using picture cards.
- Each picture card represents certain word.

Core Principle:

- Users hand a picture of a desired object/activity to a communication partner.
- Or construct sentences out of those cards.



●●● Introduction

What Is PECS?



●●● Problem statement

Physical PECS Limitations:

- Bulky, easily misplaced cards
- Time-consuming to assemble sentence boards
- Communication Gap:
- Non-verbal children need a reliable, portable tool
- Caregivers require faster setup and customization

Goal: Transform PECS into a user-friendly digital solution with role-based access for Child, Parent, Specialist, Organization, and Manager

●●● What We Actually Developed

Application Features Implemented:

- Role-based account management (signup, login, profile edit)
- Categorized picture library with CRUD operations.
 - .png/.jpeg/.jpg files can be uploaded and saved.
- Customizable sentence boards (layout, color).
 - Several sentences board can be created and customized
- Analytics.



My Role - Quality Assurance & Testing:

- Manual UI/UX evaluations.
- Contribution to requirement design.
- Designing automated TestNG/Selenium suites in Java.
- Creating and evaluating test cases based on requirements and API Documentation.
- Preparing project's user testing phase.

●●● Evaluation Methodology

Automated Testing:

- TestNG/Selenium tests in Java/Maven focused on registration and login flows across browsers with 68 test cases.
- Test case fails analysis and comparison with API documentation and project requirements.

Manual Testing:

- UI/UX reviews to spot navigation inconsistencies and usability issues.
- Functional walkthroughs of category/card CRUD operations and board workflows on different OSs and browsers and Devices.
- UI/UX evaluation based on Nielsen's heuristics.

User Testing (wasn't done):

- User feedback on basic account management features.
- Observations and interviews conducted with children to gain feedback on PECS usability.

Demonstration





Conclusion:

- Digitalized core PECS phases into April Speaks.
- Robust automated test suite covering critical workflows.
- Identified UX inconsistencies via manual testing.
- Some of the inconsistencies and errors were fixed.
- Creating a easily expandable testing code for future unit and integration testing.

Future work:

- Complete User Testing: formal sessions with children & caregivers
- Expand Automated Coverage: add integration tests for Boards & Analytics and expansion of test cases.
- Requirements refinement: for better coding practices and testing.



Thank you!