uChattin – A Non-Verbal Communication App **Capstone Project – CSC311: Advanced Programming**  
**Farmingdale State College**

Overview **uChattin** is a desktop-based communication application built to support non-verbal individuals in expressing themselves effectively. The app features a customizable image grid interface, enabling users to construct sentences through image selection. These sentences are then spoken aloud using ARAsaac Text to Speech technology, giving a voice to those who need it.

Entrance screen is the Login page, you can restore your password here or create an account if you’re new to the application.A screenshot of a login page

AI-generated content may be incorrect.

This is the User registration screen which collects basic information about the user, in order to make an account for them.

A screenshot of a computer

AI-generated content may be incorrect.

Next the user either uses a personal picture or is able to choose one of the many avatars in our application.

A screenshot of a computer

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After logging in the User is greeted with a home screen , which contains a few different areas such as the categories section.

A screenshot of a computer

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In the categories section a user has up to 14 different subjects to choose from, and all of the content is in alphabetical order

A screenshot of a computer

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Another feature would be a user profile, the user profile screen allows you to post a bio.

A screenshot of a computer

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Lastly the settings screens allows users to edit their profile, manage favorite phrases, some accessibility options, settings for the application and the ability to delete their profile.

A screenshot of a computer

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This project was developed by a team of five students following Agile development practices. It emphasizes accessibility, usability, and personalization.

Goals

* Deliver a simple, intuitive interface for non-verbal users.
* Enable sentence creation via image selection.
* Vocalize messages using built-in, offline text-to-speech.
* Allow caregivers, educators, and family members to customize the experience.
* Store user preferences and data securely using local or cloud-based storage (excluding Firebase).

Key Features

Picture Grid Interface

* Dynamic GridPane layout using JavaFX, categorized by context (e.g., food, actions, emotions).
* Users construct sentences by clicking images.
* Category navigation via tabs or sidebar.

Text-to-Speech

* Converts image selections into spoken sentences.
* Uses ARAsaac Text to Speech

User Personalization

* Customizable image sets per user.
* Admin interface for creating and managing categories, images, and phrases.

Data Storage & Security

* Secure user data handling via encrypted local or Azure-hosted database solutions.
* Azure Key Vault removed; sensitive info is handled securely using local encryption protocols.

Technologies Used

* **Frontend**: JavaFX / FXML / CSS
* **Backend**: Java 23
* **Text-to-Speech**: ARAsaac Text to Speech
* **Data Storage**: Azure SQL
* **Build Tool**: Maven
* **IDE**: IntelliJ IDEA

Team Members

* **Joseph Nunez** – Developer, Project Manager
* **Nadeige Eugene** – Developer, UX/UI
* **Eduardo Escobar** – Fullstack Developer, GitHub Administrator
* **Khayalamakhosi Dlamini** – Fullstack Developer, Style & Theme Engineer
* **Ahnaf Sindid** – Fullstack Developer, Database Admin

Current Status The project is in active development (Spring 2025). The team is currently:

* Integrating ARAsaac Text to Speech
* Refining UI based on feedback from accessibility specialists
* Enhancing the admin customization interface

Future Plans

* Export/share sentence history for caregiver insights.
* Implement predictive phrase suggestions using NLP.
* Add cross-platform (Android/iOS) support.
* Support for multiple voices and languages.

Repository GitHub: [EduardoEsc0bar/UChattinCapstoneProject](https://github.com/EduardoEsc0bar/UChattinCapstoneProject)