**AI Wellness Companion App for Aging in Place**

**Course**: CSIS 4495 – Applied Research Project

**Term**: Fall 2025

**Section**: 050

**Team Members:**

- Aafrin Zahid Memon (300388614) - Team Lead

- Akinro Akintunde(300389708) - Member

- Ifeoluwa Aribo(300389564) - Member

# 1. Introduction

The rapid growth of the aging population worldwide has intensified the need for innovative solutions that promote independence, well-being, and quality of life among older adults. Many seniors face challenges such as managing their health conditions, maintaining social connections, and carrying out daily activities without relying heavily on caregivers. These challenges not only impact individual healthspan but also place significant strain on families, communities, and healthcare systems.

AgeTech, a term generally used for an emerging field at the intersection of healthcare, caregiving, and technology, is a promising potential to address these issues. While existing digital health tools provide fragmented services such as fitness tracking, telehealth consultations, or even something as basic as reminder apps. There is a lack of integrated and personalized platforms designed specifically to support older adults comprehensively. In-market solutions often fail to combine accessibility, ease of use, and adaptability to the multiple needs of seniors, leaving a gap in effective long-term support.

Our project proposes the development of an **AI-driven wellness companion** that empowers seniors to maintain independence, emotional well-being, and social engagement while aging in place. By leveraging artificial intelligence, the companion will deliver personalized health and wellness recommendations, provide reminders for daily activities, and facilitate meaningful social interactions. The initiative assumes that combining AI technology with user-centered design principles will create a scalable, user-friendly solution that not only addresses caregiving gaps but also fosters innovation in healthcare and accessibility.

The potential benefits of this research are multifaceted: improving the quality of life for seniors, reducing caregiver burden, and demonstrating the role of AI in supporting long-term healthcare solutions. This foundation will guide the design of a **minimum viable product (MVP)** that prioritizes usability, scalability, and adaptability for the aging population.

# 2. Proposed Research Project

**2. Proposed Research Project**

**2.1 Research Design and Objectives**

The project will follow a **user-centered design** and **iterative prototyping approach** to ensure that the AI Wellness Companion effectively addresses the needs of older adults. The key objectives are:

1. To design and develop a **functional prototype (MVP)** of an AI-driven wellness companion.
2. To integrate personalized health and wellness recommendations, daily activity reminders, and social engagement features.
3. To evaluate the usability, accessibility, and scalability of the system through user testing and feedback.
4. To demonstrate the potential of AI-driven AgeTech solutions in improving independence, emotional well-being, and quality of life for seniors.

**2.2 Methodology and Justification**

The research will adopt a **mixed-methods approach** combining **qualitative** and **quantitative** techniques:

* **Literature Review**: To establish the state of current AgeTech and AI-based caregiving tools, highlighting gaps in personalization and accessibility.
* **User Research**: Conduct surveys or interviews with older adults and caregivers to understand pain points and requirements (small, exploratory sample size of ~10–15 participants due to project scope).
* **Agile Development**: Use an iterative process with sprints to design, prototype, and refine the MVP. This ensures responsiveness to user feedback.
* **Usability Testing**: Apply standard usability testing methods (e.g., System Usability Scale, task completion time, error rate) with a pilot group to evaluate ease of use.

The methodology is justified by combining academic insights (from Human-Computer Interaction, AI/ML courses, and healthcare technology literature) with industry practices in **Agile product development** and **UX design**, ensuring both scientific rigor and practical applicability.

**2.3 Data Collection and Analysis**

* **Data Collection**: Small-scale user testing sessions and structured surveys will collect data on usability, accessibility, and perceived usefulness.
* **Sample Size**: 10–15 participants (older adults or caregivers) for feedback during prototype testing.
* **Analysis Techniques**:
  + Descriptive statistics (e.g., task success rate, average time to complete tasks).
  + Thematic analysis of qualitative feedback to identify usability issues and improvement areas.
  + Iterative evaluation for continuous refinement.

**2.4 Technologies and Tools**

The development will leverage a modern tech stack that balances scalability and accessibility:

* **Operating System/Platform**: Cross-platform deployment via **Web (React/Next.js)** and **Mobile (React Native/Flutter)** for accessibility.
* **Programming Language(s)**: **Python** (AI/ML logic), **JavaScript/TypeScript** (frontend).
* **Database**: **PostgreSQL** for structured data storage (user logs, preferences), integrated with **SQLite** or cloud-based storage for testing.
* **Backend Framework**: **FastAPI** or **Node.js/Express** for API development.
* **AI/ML Frameworks**: **scikit-learn** and **TensorFlow/PyTorch** for building recommendation models.
* **Frontend**: Responsive and senior-friendly UI design with **React** or **Flutter** for accessibility.

**2.5 Expected Results and Contributions**

The expected outcome is a **functional prototype of the AI Wellness Companion** with:

* Personalized health and wellness recommendations.
* Daily activity reminders and scheduling tools.
* Basic social engagement functionality.
* A user-friendly and accessible interface designed with older adults in mind.

The contributions of this research include:

1. Providing a practical demonstration of how AI can enhance AgeTech solutions.
2. Offering a scalable and adaptable MVP that could be expanded for real-world healthcare applications.
3. Reducing caregiver burden by supporting seniors in maintaining independence and social connection.

# 3. Riipen External Partners or Affiliates

This project is being developed in collaboration with **Enabled Talent** through the Riipen platform. The project, titled *AI Wellness Companion for Aging in Place*, focuses on leveraging artificial intelligence to enhance the independence, accessibility, and well-being of older adults.

* **Partner Organization**: Enabled Talent
* **Project Link**: [AI Wellness Companion for Aging in Place](https://douglascollege.riipen.com/projects/gzY8EgOJ)
* **Scope**: Build a **minimum viable product (MVP)** using AI technology that provides personalized health recommendations, daily reminders, and social engagement tools for seniors.
* **Technology Stack**: To be finalized in collaboration with the partner organization. Preliminary considerations include Python for AI/ML, React or Flutter for the user interface, and PostgreSQL or equivalent database systems.

The collaboration with Enabled Talent provides industry context, mentorship, and access to resources that will guide the development of a scalable and impactful AI-driven AgeTech solution.

# 4. Project Planning and Timeline

The project will follow the course outline and milestones set by CSIS 4495 while incorporating additional project management practices. The timeline below outlines key phases, deliverables, and responsibilities.

**4.1 Timeline of Phases and Deliverables**

| **Week** | **Date** | **Activity / Deliverable** | **Details** |
| --- | --- | --- | --- |
| Week 1 | Sept 4 | **Introduction & Conceptualization** | Carry out design surveys on our target users to have a better understanding of user experience |
| Week 2 | Sept 11 | **Project Proposal, Meeting with Enable Talent, Start of Ui Design (wireframe)** | Submit written proposal (6+ pages). Roles and responsibilities confirmed.  Meeting with Enable Talent  Ui/Ux design commences with FIgma |
| Week 3 | Sept 18 | **Proposal Review & Approval**  **Rounding up Ui/Ux design** | Instructor feedback and adjustments. |
| Week 4 | Sept 25 | Final Stage of Ui Ux Design | Initial research documentation, Complete UI sketches. |
| Week 5 | Oct 2 | **Project Consultation and Design Feedback**  **Commencement of Backend and Database Schema** | Initial prototype design in Figma; database schema draft. |
| Week 6 | Oct 9 |  | Early backend/API setup; baseline AI model selection. |
| Week 7 | Oct 16 | **Backend design and Api Implementation**  Frontend Implementation | Iterative improvements on prototype; basic Frontend implementation. |
| Week 8 | Oct 23 | **Frontend Development: Implementation of User login and registration screens** | Submit midterm written report and demo of partial functionality. *Progress Report 3.* |
| Week 9 | Oct 30 | **Project feedback and update meeting with Enabled Talent** | Refinement of MVP features; usability feedback integration. |
| Week 10 | Nov 6 |  | Functional Application of reminders + health recommendation |
| Week 11 | Nov 13 | Video Demo | Video demo of MVP progress, including AI-driven recommendations. |
| Week 12 | Nov 20 |  | Near-final Development; database integration tested. |
| Week 13 | Nov 27 | **Final Report & Implementation (40%)** | Submit full written report and final working MVP. |
| Week 15 | TBA | **Project Defense (20%)** | Final presentation and defense of research, MVP, and findings. |

* 1. **Roles and Responsibilities**
* **Aafrin Zahid Memon  
  Team Lead**: Oversees project progress, manages communication with Enabled Talent, and ensures deliverables are submitted on time.

**Documentation Lead**: Prepares reports, compiles references, and maintains work logs.

**Frontend Developer**: Implements the user interface and connects it with backend functionality.

* **Akinro Akintunde**

**UI/UX Designer**: Responsible for interface design, accessibility considerations, and usability testing.

**Frontend Developer**: Implements the user interface and connects it with backend functionality.

* **Ifeoluwa Aribo**

**Backend/AI Developer**: Builds AI logic, APIs, and integrates machine learning recommendations.

**4.3 Project Management Tools**

To support collaboration and transparency, the project will be managed using:

* **Kanban Board** (Trello - Jira) for sprint planning and task assignments. <https://project-csis-4495.atlassian.net/jira/core/projects/AWCFAIP/board?filter=&groupBy=status&atlOrigin=eyJpIjoiYWZiOGUzNDQxMDgwNDBiMGJhYzBjYTkzYThmMDY5YjgiLCJwIjoiaiJ9>

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* **Version Control** (GitHub) for code management.
* **Shared Document Repository** (Google Drive) for collaborative writing and logs.

# 5. Project Contract

Include a contract signed by all team members agreeing to the scope of work and timelines. Add any additional agreements (e.g., meeting frequency or format).

**5. Project Contract**

**Course:** CSIS 4495 – Applied Research Project (Fall 2025)  
**Project Title:** AI Wellness Companion for Aging in Place  
**Partner Organization:** Enabled Talent (via Riipen)  
**Team Lead:** Aafrin Zahid Memon - 300388614  
**Team Members:** 1. Akinro Tunde | 2. Ifeoluwa

**5.1 Scope of Work**

The project team agrees to:

1. Develop a **Minimum Viable Product (MVP)** of an AI-driven wellness companion that provides personalized health recommendations, daily activity reminders, and social engagement features.
2. Prepare professional documentation, including proposal, midterm report, final report, and presentation.
3. Adhere to the **timeline and milestones** outlined in Section 4 of the proposal.
4. Collaborate with **Enabled Talent** for feedback and alignment with project objectives.

**5.2 Responsibilities**

* **Team Lead**: Coordinates meetings, ensures deadlines are met, communicates with Riipen partner and instructor.
* **Frontend/UI Developer**: Designs and implements the user interface with accessibility for seniors in mind.
* **Backend/AI Developer**: Develops AI-driven features, APIs, and database integration.
* **Documentation Lead**: Maintains reports, project logs, and manages submission formatting.

*(Note: Roles may overlap depending on team size.)*

**5.3 Timeline Agreement**

The team commits to following the weekly deliverables and deadlines as outlined in the **Project Planning and Timeline (Section 4)**, including proposal submission, progress reports, midterm report, final report, and defense.

**5.4 Meetings and Communication**

* Weekly team meetings will be held on: Mondays & Thursdays at 5pm (pst) .
* Communication will be conducted primarily via: Outlook, MS Teams
* Progress will be tracked via: Trello & Github .

**5.5 Signatures**

By signing below, all team members agree to the scope, responsibilities, and timelines defined in this contract.

| **Name** | **Student ID** | **Signature** | **Date** |
| --- | --- | --- | --- |
| Aafrin Zahid Memon | 300388614 |  | 15th September 2025 |
| Akinro Akintunde | 300389708 |  | 15th September 2025 |
| Ifeoluwa Aribo | 300389564 |  | 15th September 2025 |

# 6. Work Date/Hours Logs

Provide a log for each student, updated regularly. Example:

|  |  |  |
| --- | --- | --- |
| Date | Hours | Description of Work Done |
| 11th September 2025 | 3 | Project Proposal |
| 14th September 2025 | 1 | Project Proposal |
|  |  |  |
|  |  |  |
|  |  |  |

# 7. Closing and References

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**7.1 Closing / Acknowledgements**

The project team would like to acknowledge the guidance and support provided by **Professor Bambang A.B. Sarif**, Douglas College, for outlining the structure and requirements of the CSIS 4495 Applied Research Project.

We also acknowledge the contribution of **Enabled Talent** as the Riipen project partner for providing mentorship, domain expertise, and practical insights into the development of the AI Wellness Companion for Aging in Place. Their involvement offers valuable real-world context that strengthens the academic and practical significance of this project.

**7.2 References (APA Style)**

*(Sample references for now — you can replace/expand these with actual sources you use during literature review and development.)*

* Riipen. (2025). *Enabled Talent – AI Wellness Companion for Aging in Place*. Douglas College Riipen Portal. Retrieved from <https://douglascollege.riipen.com/projects/gzY8EgOJ>