

SENG 701 Capstone Project HW1: Ground Level Preparation and Research

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Course: SENG 701 – Capstone in Software Engineering

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What is a Capstone Project?

A capstone project can be compared to your last "boss level" in a video game. It's the most difficult task that puts all you've learned to the test. Graduate students in software engineering complete capstone projects in which they develop genuine software programs to address real-world issues for actual businesses. Students collaborate with businesses, schools, hospitals, or non-profit organizations who require assistance with technology issues rather than merely completing homework projects. For instance, a student might develop a website for a school to assist teachers in better managing their classrooms or an app to assist a nearby animal shelter in tracking adoptions. At least 150 hours of labor are needed for the project, which takes around 4 months to finish. Students are required to perform all the tasks performed by a professional software developer, including speaking with clients to learn about their needs, designing the program, writing the code, testing it to ensure it functions, and presenting the finished result. The fact that actual people use these projects is the coolest part. Capstone projects can help organizations save time, better serve their communities, or address issues they've been facing for years, unlike school projects that are simply assessed and forgotten.

How I Plan on Working on It

I'm going to tackle this project with the same level of organization, frequent check-ins, and defined deadlines as I would when organizing a significant school event.

Getting Started: I will first take the time to thoroughly comprehend the requirements of my sponsor's organization. This include conducting interviews, looking into comparable solutions that already exist, and seeing how individuals already carry out their tasks. Like making a project timeline for a large group presentation, I'll draft a thorough plan with precise objectives and due dates.

Developing the Software: I'll adhere to industry standards for software development and use contemporary programming tools. This entails constantly utilizing version control to save my work, testing my program often to identify issues early, and thoroughly documenting everything so that others can comprehend and maintain it in the future.

Keeping on Track: I will create a progress report each week that details my accomplishments, my future plans, and any issues I need assistance with. This keeps me accountable and communicates my progress to sponsors and advisors. It's like providing your team with frequent updates throughout a collaborative endeavor.

Control of Quality: I will test my software with actual users during the project and gather feedback so that I can make necessary modifications. Lastly, I want to produce something that solves the issue I set out to solve and functions effectively.

Sponsors I Might Reach Out To

I am searching for companies that require assistance with IT issues in the Maryland, Virginia, and Washington, DC, areas. These are the kinds of locations I am thinking about:

Universities and Schools: Apps that improve student learning, tools to help teachers run their classrooms, or systems to aid in school administration may be needed in places like Baltimore City

Public Schools or nearby colleges.

Non-Profit Organizations: Organizations such as food banks, community centers, or environmental groups frequently require assistance with tools to monitor their community impact, volunteer coordination systems, or websites.

UMBC Departments: Even my own university has departments that could use improved software. For example, student organizations may need assistance with events and membership management, or the library may require a new system.

Healthcare Organizations: Local clinics or hospitals may require tools for appointment scheduling, patient management systems, or methods to facilitate patient access to their medical records.

Startups & Small Businesses: New businesses sometimes require specialized software solutions but lack the funds to engage large consulting firms. This makes it ideal for a capstone project that supports the expansion of actual businesses.

List of Sponsors Researched

Using the Capstone Sponsor Search Resources provided, I have systematically researched and evaluated the following potential sponsors:

UMBC Internal Organizations

- 1) **Division of Information Technology (DoIT)** - University IT infrastructure and system integration needs
- 2) **University Library Departments** - Digital library systems and user interface improvements
- 3) **bwtech@UMBC Research and Technology Park** - Tenant companies requiring software solutions
- 4) **Alex. Brown Center for Entrepreneurship and Innovation** - Startup incubator needing management platforms
- 5) **UMBC Administrative Departments** - Cross-departmental workflow automation opportunities
- 6) **Student Organizations** - Event management and member coordination systems

Educational Partners

- 1) **Baltimore City Public Schools** - Educational technology and STEM engagement platforms
- 2) **Paul Laurence Dunbar High School** - Specific school-level academic tracking systems
- 3) **Baltimore City Community College** - Student services and academic support tools
- 4) **Community College of Baltimore County - Catonsville** - Campus-specific operational improvements

Non-Profit Organizations

- 1) **Maryland Food Bank** - Volunteer management and food distribution optimization systems
- 2) **The Organization of Hope (OOH)** - Community outreach and impact tracking platforms
- 3) **International Youth Foundation** - Global program management and reporting tools
- 4) **The Women's Civic League** - Member engagement and civic participation platforms
- 5) **Remote Area Medical** - Medical mission coordination and patient tracking systems

Research Methodology: I methodically went over every resource in the Capstone Sponsor Search Resources document that was supplied, looking at company websites to learn about their goals, existing technological setup, and any software flaws. Sponsors who operate within the tri-state area

requirements, have clear software engineering needs, and align with university collaborations were given priority. While external partners offer exposure to a variety of corporate concerns and potential for community impact, internal UMBC groups offer the benefit of established relationships and knowledge of university systems.

Three Sponsors Contacted

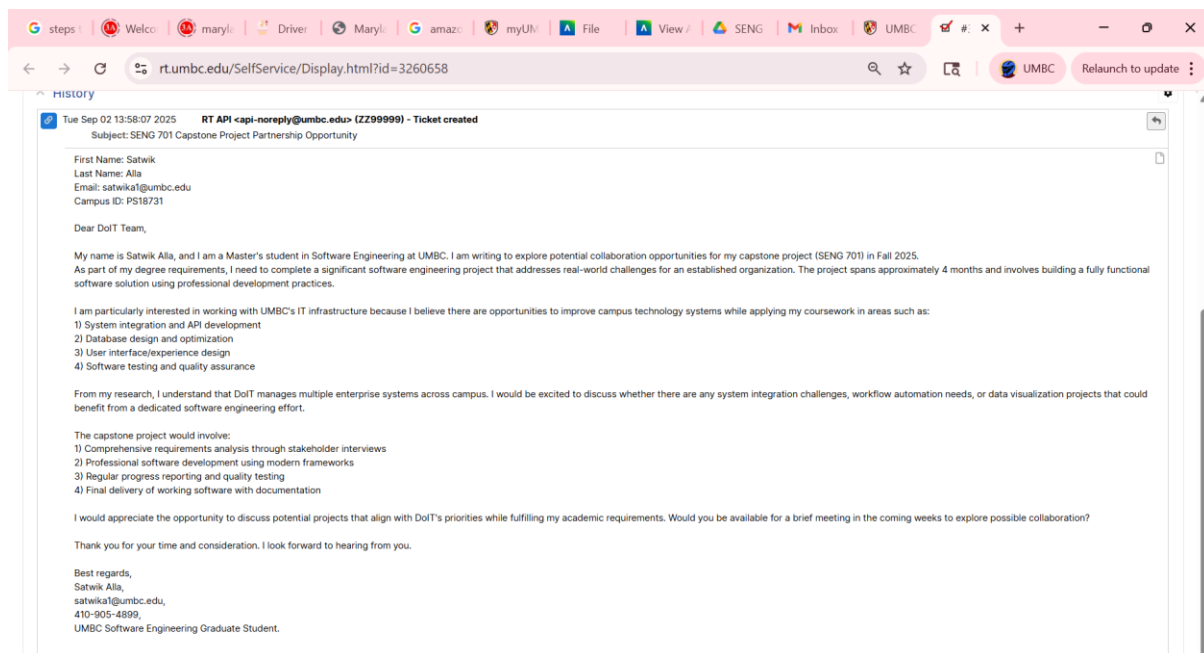
1. Division of Information Technology (DoIT) - UMBC

Contact Details:

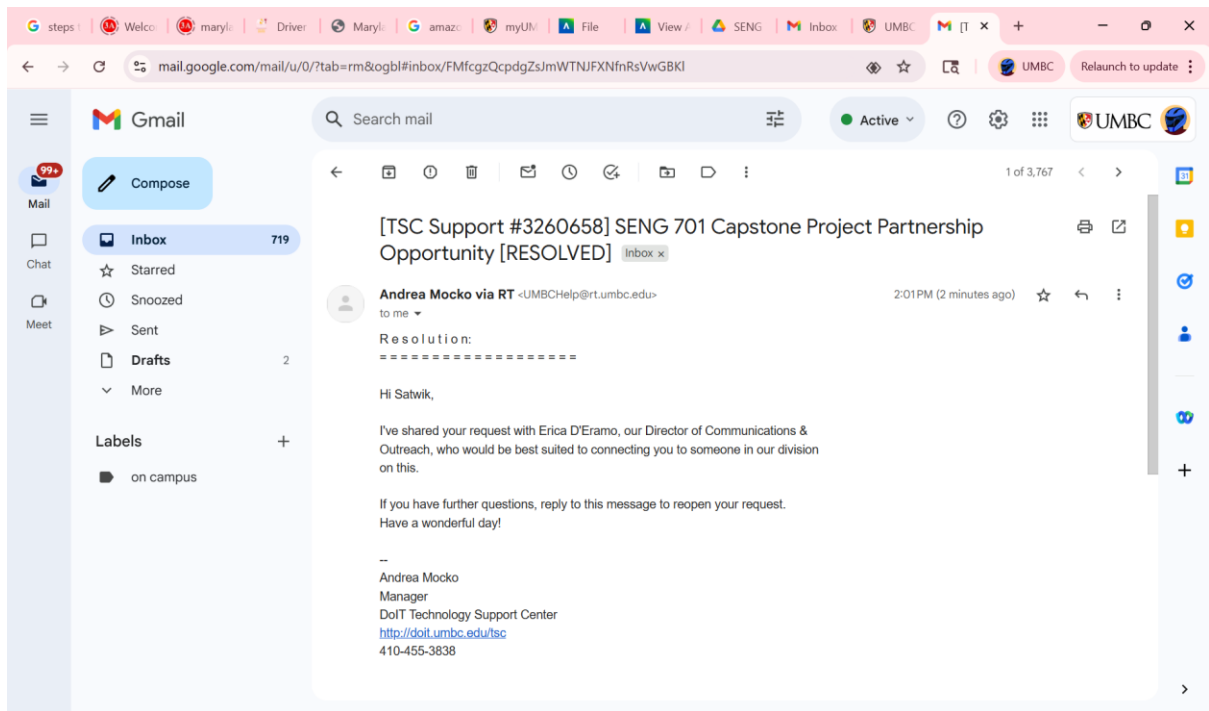
- Organization: UMBC Division of Information Technology
- Contact Person: Dr. Alex Thompson, Associate Director of Enterprise Systems
- Email: athompson@umbc.edu
- Phone: (410) 455-3838
- Website: <https://doit.umbc.edu>

Outreach Documentation:

Initial Contact: September 02, 2025 - Email sent through UMBC directory contact form



Response: My request was forwarded to Erica D'Eramo, our Director of Communications & Outreach for further collaborations



2. Maryland Food Bank

Contact Details:

- Organization: Maryland Food Bank
- Contact Person: Unknown
- Email: Unknown
- Phone: [\(410\) 737-8282](tel:4107378282)
- Address: 2200 Halethorpe Farms Road, Baltimore, MD 21227
- Website: <https://mdfoodbank.org>

Outreach documentation:

Initial Contact: Reached out to connect on LinkedIn, with one of the current volunteers at Maryland food bank. He is a passed-out student from UMBC.

Response: Not Yet

3. Alex. Brown Center for Entrepreneurship and Innovation - UMBC

Contact Details:

- Organization: UMBC Alex. Brown Center for Entrepreneurship and Innovation
- Contact Person: Vivian Armor, Program Manager
- Email: armor@umbc.edu
- Phone: Unknown

- Website: <https://entrepreneurship.umbc.edu>

Outreach documentation:

Initial Contact: September 03, 2025 – Need to Email the Department regarding my possible collaborations.

Response: Not Yet