Senior Design Project
Blockheads
Credentials and Identity Manager
Intermediate Planning Document

Project

Our team, BlockHeads, is developing an android phone application called CredHub. The application allows the user to store important documents such as IDs and credentials for a subscription fee.

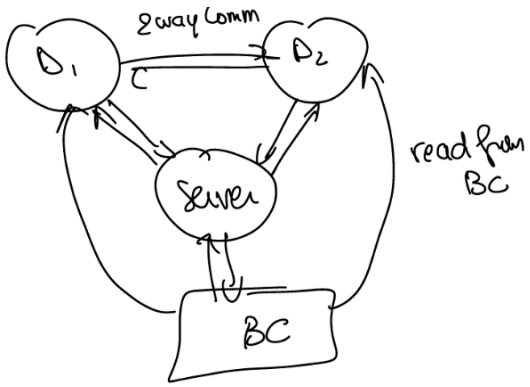
A description of your minimum viable project. What is it that you absolutely need and can deliver by April of 2024?

- Our minimum viable product:
  - Target verifying one or both a Wyoming driver's license/ID and a UW degree,
  - Login, 2FA, and recovery of passwords,
  - An android interface,
  - Smart contracts to interact with blockchain and blockchain to store IDs and credentials,
  - A server to interact with devices and the blockchain,
  - A database for temporary and system data mirrored between a device and the server, and
  - A procedure to verify with UW and Wyoming.

Detailed descriptions and diagrams of your system, sub-systems/components, and expected user interactions.

Our System and Subsystems

- These are our systems, potential languages to use, and primary and secondary team members responsible for that area.
  1. Android UI/UX, Java/Kotlin – Megan (Selma)
     - User profile, settings, preferences, and support.
  2. Security and Authentication, Java/Kotlin – Selma (Megan)
     - Document capturing and authentication.
     - Document sharing and permissions.
  3. Server, Python/C++ – Kellen (Megan)
     - API, security protocols, and data processing.
  4. Database, SQL – Tamara (Selma)
     - User data storage, and data retrieval.
  5. Blockchain and Smart Contracts, Solidity – Kellen (Tamara)
     - Integration of Blockchain, data storage and integrity.



6. Validation (contacting organizations) – Tamara (Selma)
    - Integration of external organizations, verification, and tracking.

Expected User Interactions

- The user will enter username and password and use facial recognition built into android phones. First-time users will enroll in 2FA. In case a password is forgotten, the user will be able to reset their password via pin code sent via text that will have a set expiration date. A stretch goal would be a twelve-word recovery phrase.
- The user will begin the process of verification. They will enter information about a type of ID or credential and possibly upload images of that credential. The app will interface with the issuing organization to verify it.
- We will establish a process with each organization to verify on our app.
- The home screen will have a button for each ID or credential, and the user will use a pin code (the same one for all) to access these to ensure security.
- Each ID or credential will have an expiration date and prompt the user to confirm or renew, if needed.
- The user will give permission for IDs and credentials to be accessed and viewed.
- The user can show the identity on the screen of their phone, which will be locked so that an official or other person cannot access the phone without permission.
- We will ask the issuing organization to put a page on their website that verifies the legitimacy of our app, which we will link to on our app. And so, if a person viewing an ID or credential questions the validity of the app, they can click that button and see that it is legitimate.

A rough start of mapping out specific tasks and dependencies between tasks that need to be completed in order for you to implement the systems and subsystems you have listed in 2. You do not need to assign team members to those tasks yet, but you should be thinking about the constraints, dependencies, and requirements needed to complete a task.

- See our detailed description above, as well as the pitch document, status updates, and meeting notes (attached), to see specific tasks and functionality and who is tentatively responsible for each.
- We are researching our areas to come up with more specific approaches, and we are planning on beginning programming before the end of the semester and/or over winter break to get a head start.
- Constraints: We need make sure we don't expand our project to far. We are constrained by the requirements of Android, App Store, AWS, Ethereum blockchain, a SQL database, and the verifying organizations.
- Dependencies: We are developing these as we are developing our approach.
- Requirements: We have outlined our minimum viable product and tentatively decided on approaches. Now we each will be investigating the requirements on our area.
- Tentative Timeline:
    - January: Continue developing each of our portions, dividing work, and building the app.

- February: Continue development process as well as reach out to resources and mentors for assistance. Making changes according to the feedback provided. Begin work on interoperability of components.
- March: Finalize our project, bring it all together, and start vigorous testing.
- First two weeks of April: Bug fixes, finalize presentation, and put everything together.