ATM 2.0

Sprint Two Retrospective

Team 25

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Summary

The team was also in charge of doing the research necessary to contribute effectively to the project. The topics to be researched were:

Krutarth

- Facial recognition
- Database management
- Azure SQL server
- File system encryption

Anthony

- Fingerprint drivers
- Fingerprint matching algorithms/libraries
- VPN Systems
- Internet Protocols (TCP/IP)

Harold

- Fingerprint Authentication Algorithms
- SSL Implementation

Austin

- Camera Drivers
- Button/Touch Drivers

Austin

Relevant user stories

- “As a developer, I would like the graphical user interface to be in communication with the rest of the client”
- “As a developer, I need to receive data from the button reader and present it to other parts of the system in a useable fashion.”
- “As a developer, I need to receive data from the camera reader and present it to other parts of the system in a useable fashion.”
- “As a developer, I would like the graphical user interface to be in communication with the rest of the client”

These user stories involve the drivers to be written and accessible for the user to interact with. The GUI should also interact with the client.

What went well?

- The camera drivers were well documented and easy to work with.
- We were able to develop the control logic of the main client and ultimately the entire system as a team.
- Designing the usability of the camera interaction was simple.
- API method calls and fields names were intuitively easy to remember and use.
- Switching from a PI to laptop simplified the touch drivers.
- We were able to get a card reader making the button drivers unnecessary.

What did not go well?

- Because I had created a separate project for the GUI, it has been unexpectedly difficult to merge the client with the GUI.
- Because we planned to use a PI and ended up with a Laptop, time was wasted on research into the PI.
- Although, I believe we achieved plenty of work, I do not think we worked to our full potential.

Solutions

- I will have to brute force my way into merging the client and GUI, which will limit the time we can put to new features.
- The switch on hardware was solely due to the research into our project and knowing what will be best for us. I believe in the long run we are actually saving time and effort, even though we did lose some during the switch.
- We have to motivate each other to ensure that we will keep up to the necessary workload and attempt to surpass the expectations.

Anthony

Relevant user stories

- “As a developer, I need to receive data from the fingerprint reader and present it to other parts of the system in a useable fashion.”
- “As a developer, I would like the connection between the client and the server to be over a VPN.”

What went well?

- Was able to work with Hong Kong-based company to get software for fingerprint reader.
- Team did a good job with source control systems.
- Team meetings were much smoother than those in Sprint 1.

What did not go well?

- Most fingerprint matching software is highly expensive. Creation of our own is time-prohibitive.

- Working with companies in Hong Kong caused slow communication due to the time difference.
- The fingerprint reader took much longer to implement than expected.
- While the VPN is implemented, it is not working due to a network misconfiguration. VPN systems are complicated and this could take some time to correct.

Solutions

- Use an open-source fingerprint verification library. There are several, but they are lower-quality than the available commercial solutions.
- Continue to work on VPN and network configuration on the server.

Krutarth

Relevant user stories

- “As a developer, I would like a functional and deterministic facial verification algorithm”
- “As a developer, I would like an efficient way to store the verification images”
- “As a developer, I would like a secure way to interact with the Cognitive services API such that sensitive user information is not revealed to third parties”

The above user stories involve implementing the FacialVerification class and interacting with the Microsoft Cognitive services API.

What went well?

- Team continued to follow source code management guidelines and efficiently used git.
- The Cognitive Services API was well documented and fairly accurate in its facial recognition capabilities.
- The project structure allowed for easy testing for the correctness of facial recognition.

What did not go well?

- Team still lacked communication in areas where inter-module functionality is required. There is still a gap in understanding the work of others and this will bring about major challenges when integrating.
- Majority of the sprints targets are accomplished during the later quarter of the sprint and this allows for little time to test our code. We may have a large amounts of bugs that have been piling up.
- The team could use more funding to obtain an accurate fingerprint matching software package.

Solutions

- Team members should walk through their relevant work in detail during team meetings.
- Team should test the code more thoroughly as the system modules are completed.
- Team should have a dry run for the final demo a day before to identify last minute bugs.

- Team should start early to make sure we have sufficient time to overcome unexpected challenges during the module merging process.

Harold

Relevant user stories

- “As a developer, I need to receive data from the fingerprint reader and present it to other parts of the system in a useable fashion.”
- “As a developer, I would like data sent between the client and the server to be transported over Secure Sockets Layer (SSL).”

What went well?

- Research on the algorithms for fingerprint authentication
- Team meetings and team communication went better than Sprint 1

What did not go well?

- Implementing algorithms to translate byte array to bitmap
- Time estimate for workload was much lower than it should have been
- No time for SSL implementation

Solutions

- Better estimations for time necessary for individual work
- Communicate with team members for help when necessary
- Team should practice presenting for final presentation