

MICHIGAN STATE
UNIVERSITY

Alpha Presentation

Digital Banking with Chatbots

The Capstone Experience

Team MSUFCU

Cori Tymoszek

Josh Benner

Chuanyun Xiao

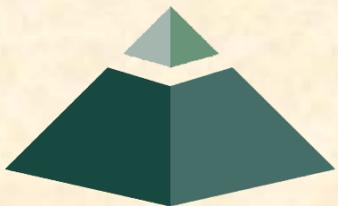
Gus Fernandes

Syed Naqvi

Department of Computer Science and Engineering

Michigan State University

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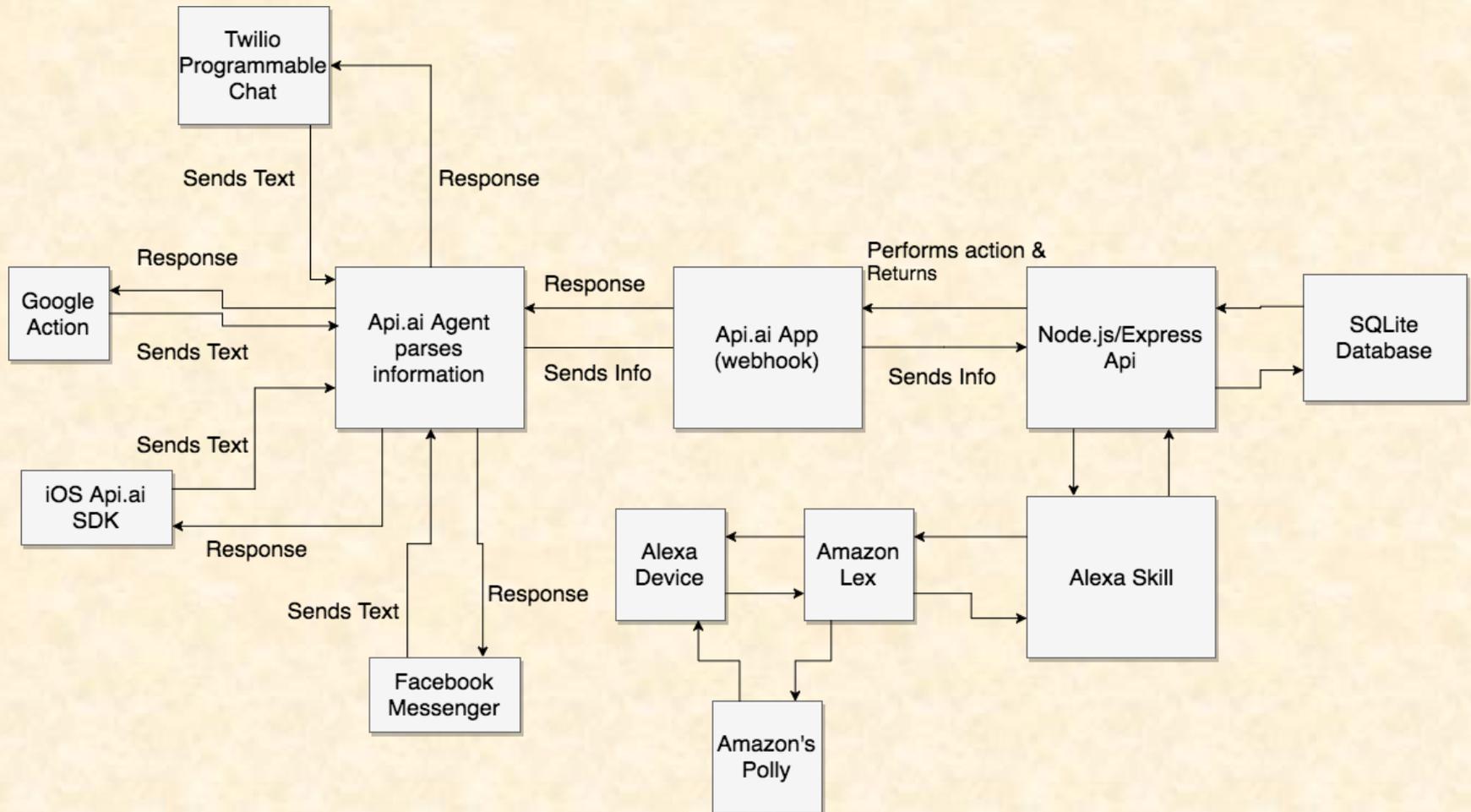


From Students...
...to Professionals

Project Overview

- Allow members to more conveniently access support through a digital chatbot
- Expand platforms to include Facebook, Google Assistant, and Amazon Alexa
- Reduce workload on human representatives

System Architecture



Google Assistant and Alexa

Hey, what's my checking account balance?

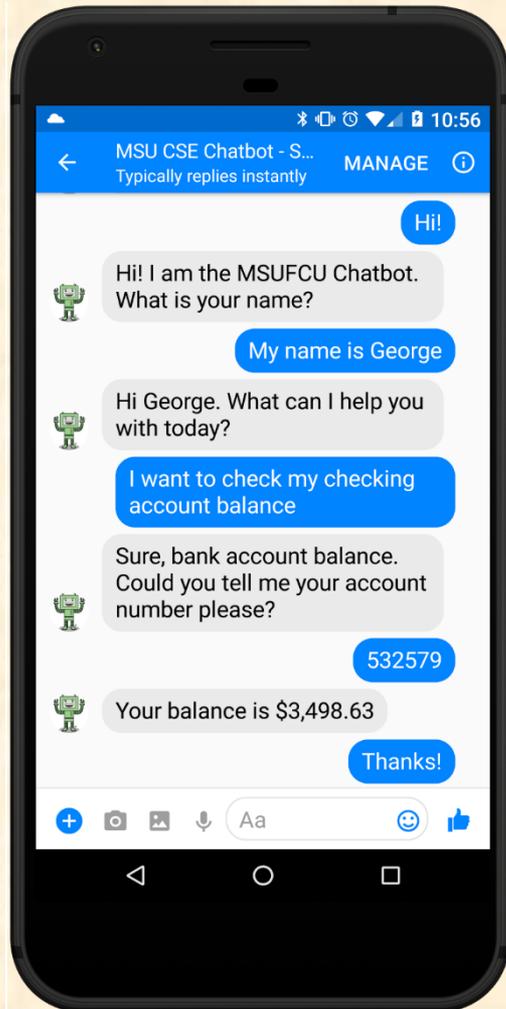
Sure, account balance. Please say your 4 digit PIN.

It's 6781.

Thanks. Your balance is \$3,498.63



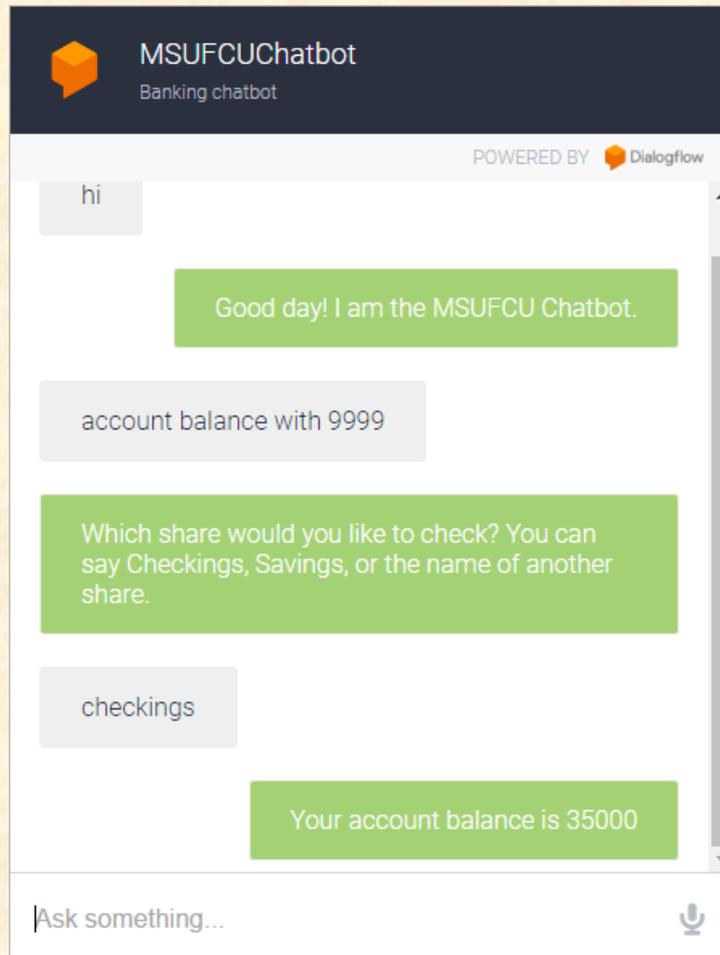
Facebook Messenger



- Convenient
- Easy and fast
- 24/7 support



Web App



Live Demo

- Google Home
- Alexa
- Facebook Messenger
- Web App



What's left?

- Finish all intents on Api.ai - now “Dialogflow”
- Implement all database related functions - e.g. transfers, bill payments, fee reversals, etc...
- Finish User Authentication
- Unit Testing API and NLP Apps
- If time allows, implement SMS, iOS and Android



Questions?

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Risks Mitigated Overview

- Risk 1
 - Potential vulnerability of intercepting confidential data from database
 - Mitigated:
 - Our API requests are encrypted and sent using SSL/HTTPS
- Risk 2
 - Gaining access to an unauthorized bank account
 - Mitigated:
 - API requests also require a unique ID for their account as well as the specific device ID
 - A User session timeouts after 2 minutes of non-use
- Risk 3
 - Client wants apps on a variety of different platforms
 - Mitigated:
 - API.AI is handling FB MSG, Web App, and Google Assistant off one code base. iOS, SMS, and Android are put on hold
- Risk 4
 - NLP may not understand what the user says due to accents and pitch
 - Mitigated:
 - Suggest users to use the voice training each platform provides



Handling Secure Authentication

- User's can set permissions per feature if it's voice capable.
 - i.e. User can choose to make Check Balance allowed but not Transfer Money
- Able to do sensitive actions only during a 2 minute window



Live Chat Handoff

- Certain actions like fee reversals require more education and personalization, hence they'll be handed off
- Emailing Customer Service Representative when a Customer needs to be helped
- The Customer Service Representative will then click on the Facebook Message
- Other platforms do not currently support live chat, and tapping into MSUFCU's current system(Sysco) is out of this projects scope



Banking Transactional Queries Integrity

- Using Sqlite and the transactional wrapper library for nodejs “sqlite3-transactions”
- Writing Unit Tests to ensure every money transferring query works transactionally



Possible Authentication Flows

- User will sign into Amazon or Google Assistant App
- User will click to link their “MSUFCU” account
- 2 methods:
 - Sign in through an Amazon account
 - Sign in through Web App which shows a 4 digit code to type into Alexa Account Linking

Sample List of Tasks

- Password Reset
- Wire Transfer
- Check Bill Due Date
- Turn off Auto-Pay
- Report Lost/Stolen Card
- Check Balance
- Check Current Fee Rates
- FAQ Questions on [MSUFCU.com/faqs](https://www.msufcu.com/faqs)
- Check Hours
- Transfer Money
- Routing Number
- Direct Deposit Information
- Upcoming Bills Due

