

**MICHIGAN STATE**  
**UNIVERSITY**

# Project Plan

## Customer Service System with Chatbot

The Capstone Experience

Team Phoenix Group

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*From Students...*  
*...to Professionals*

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# Functional Specifications

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- Phoenix Group
  - Credit Card Point of Sale Terminals
  - Manuals (QRGs) are physical
  - Customer service is time consuming
- Improve Customer Service
  - Digitize hard copies of manuals
  - Chatbot: FAQs

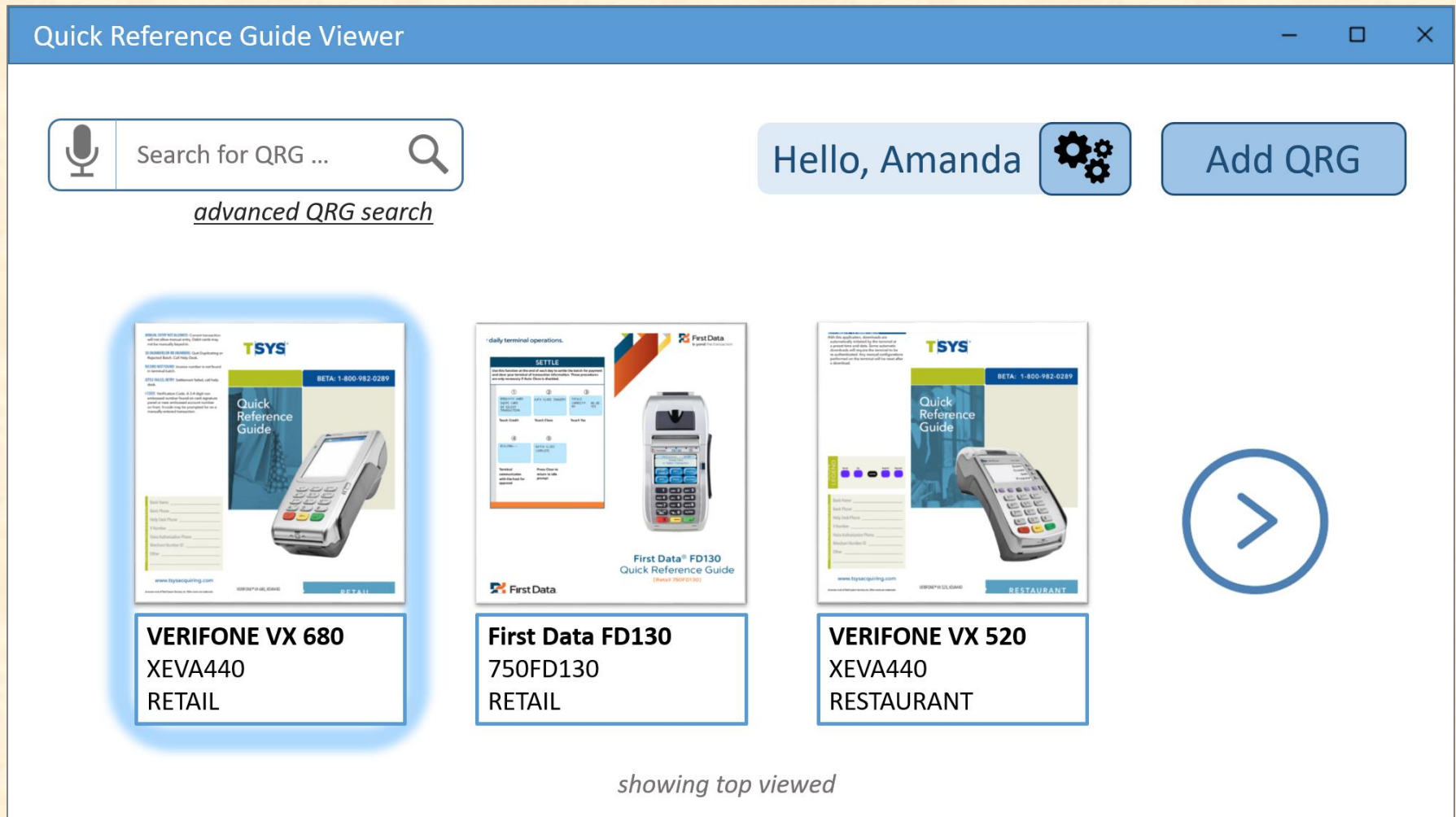


# Design Specifications

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- QRG Management Application
  - Browse and search by keywords
  - View QRG as an e-book
  - Add QRGs using tablet camera
  - Edit QRG information
- Web-based Chatbot
  - Chat window on website
  - Customers can ask general questions

# Screen Mockup: QRG Home Screen



# Screen Mockup: QRG View Screen

Quick Reference Guide Viewer

←

Edit

MANUAL ENTRY NOT ALLOWED: Current transaction will not allow manual entry. Debit cards may not be manually keyed-in.

QD (NUMBER) OR RB (NUMBER): Quit Duplicating or Rejected Batch. Call Help Desk.

RECORD NOT FOUND: Invoice number is not found in terminal batch.


SETTLE FAILED, RETRY: Settlement failed, call help desk.

V-CODE: Verification Code. A 3-4 digit non-embossed number found on card signature panel or near embossed account number on front. V-code may be prompted for on a manually-entered transaction.

**TSYS**

BETA: 1-800-982-0289

Quick Reference Guide



1234

manufacturer

Verifone

terminal type

VX 680

application type

Retail

product number

0300034

version

XEVA440

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The Capstone Experience





Team Phoenix Group Project Plan  
Presentation

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# Screen Mockup: QRG Edit Screen

Quick Reference Guide Viewer

←



Save


MANUAL ENTRY NOT ALLOWED: Current transaction will not allow manual entry. Debit cards may not be manually keyed-in.

QD (NUMBER) OR RS (NUMBER): Quit Duplicating or Rejected Batch. Call Help Desk.

RECORD NOT FOUND: Invoice number is not found in terminal batch.


SETTLE FAILED, RETRY: Settlement failed, call help desk.

V-CODE: Verification Code. A 3-4 digit non-embossed number found on card signature panel or near embossed account number on front. V-code may be prompted for on a manually-entered transaction.



BETA: 1-800-982-0289

Quick Reference Guide



Bank Name \_\_\_\_\_

Bank Phone \_\_\_\_\_

Help Desk Phone \_\_\_\_\_

V Number \_\_\_\_\_

Voice Authorization Phone \_\_\_\_\_

Merchant Number ID \_\_\_\_\_

Other \_\_\_\_\_

1 2 3 4

*manufacturer*

Verifone

*terminal type*

VX 680

*application type*

Retail

*product number*

0300034

*version*

XEVA440

Add comment ...

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






# Screen Mockup: QRG Admin Screen


Quick Reference Guide Viewer

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User	Privileges
John Taylor	 + 
Sarah Tichen	+ 
Hadassah Turtman	
Lia Ucas	
Tony Undermeyer	 + 
Abdullah Vang	+ 
Diane Vazz	
Adam Vincent	+ 
Anita Vuh	
Hannah Warner	+
Sydney Watson	+

Sarah Tichen:

 grant admin

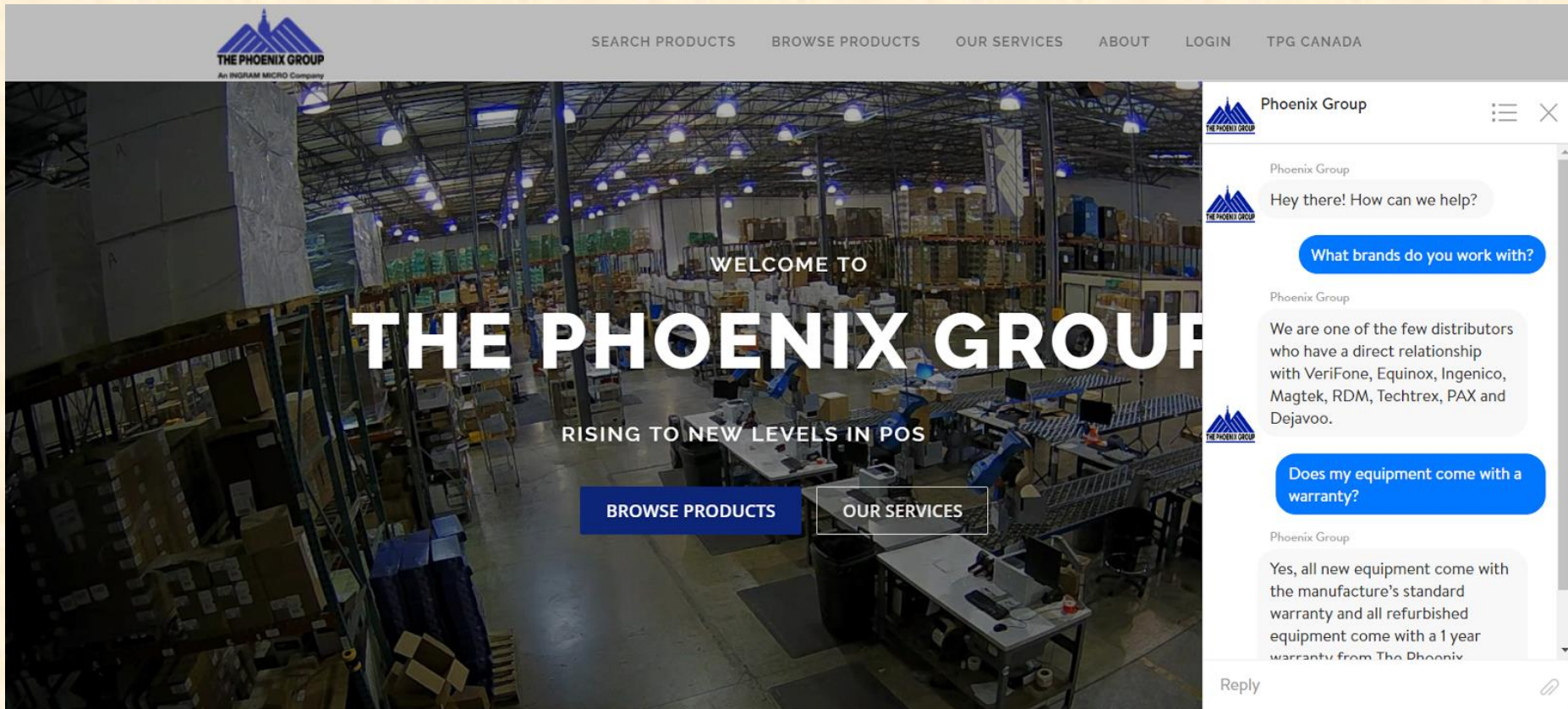
+ revoke add

 revoke edit





# Screen Mockup: Chatbot



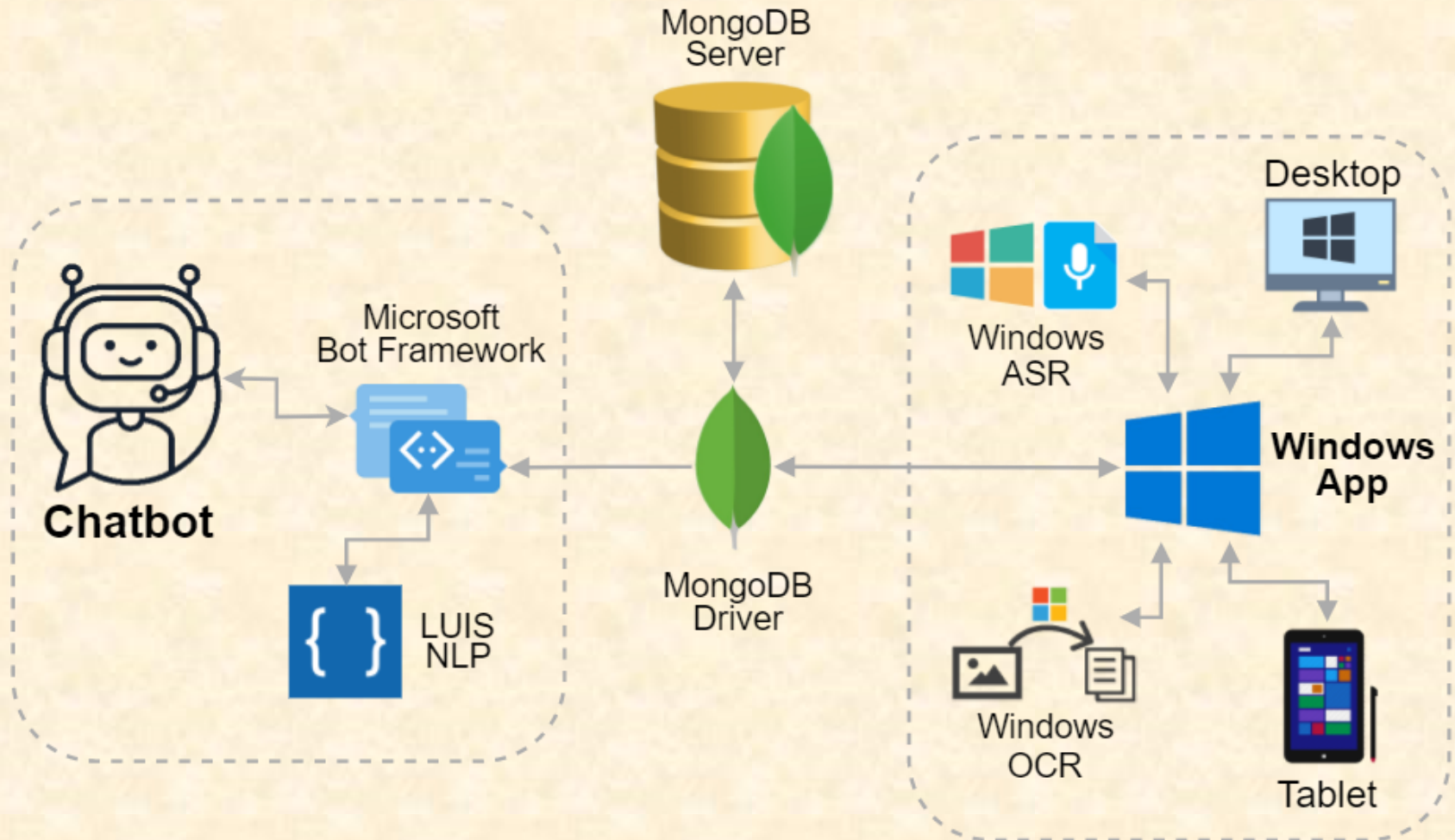


# Technical Specifications

- QRGs Manager
  - Windows Optical Character Recognition (OCR) API for feature extraction.
  - Windows Automatic Speech Recognition (ASR) API for voice commands.
- Chatbot
  - Microsoft LUIS for Natural Language Processing.
- MongoDB database
  - Store/query QRGs.
  - Query the answers to the Chatbot questions.
  - MongoDB C# Driver for the database interactions



# System Architecture



# System Components

- Hardware Platforms
  - Windows 10 Surface Pro/Desktop
  - Local Windows 2012 R2 server
- Software Platforms / Technologies
  - QRGs Manager
    - Universal Windows C# Framework in Visual Studio
  - Chatbot
    - Microsoft Bot Framework



# Risks

- Optical Character Recognition
  - Process image and extract relevant info
  - *Various lighting conditions and angles*
- Data Transfer Speed
  - Searching through hundreds of QRGs
  - *Stress test the data transfer rate*
- ASR
  - Both open-source and accurate
  - *Test various packages*
- UI
  - Getting UI to look good on any device
  - *Test UI on tablets and desktops*



# Questions?

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