

**MICHIGAN STATE**  
**UNIVERSITY**

# Project Plan

## Customer Service System with Chatbot

The Capstone Experience

Team Phoenix Group

Fatema Alsaleh

Sarah Fillwock

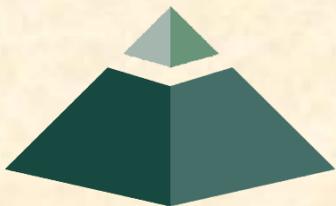
James Finch

Aman Goshu

Dan Shumaker

Department of Computer Science and Engineering  
Michigan State University

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

# 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

Quick Reference Guide Viewer

Search for QRG ...  

advanced QRG search

Hello, Amanda 

Add QRG



TSYS  
BETA: 1-800-982-0289  
Quick Reference Guide  
www.tsysqrg.com

**VERIFONE VX 680**  
XEVA440  
RETAIL



daily terminal operations.  
First Data  
SETTLE  
First Data® FD130  
Quick Reference Guide  
(Search 750FD130)

**First Data FD130**  
750FD130  
RETAIL



TSYS  
BETA: 1-800-982-0289  
Quick Reference Guide  
www.tsysqrg.com

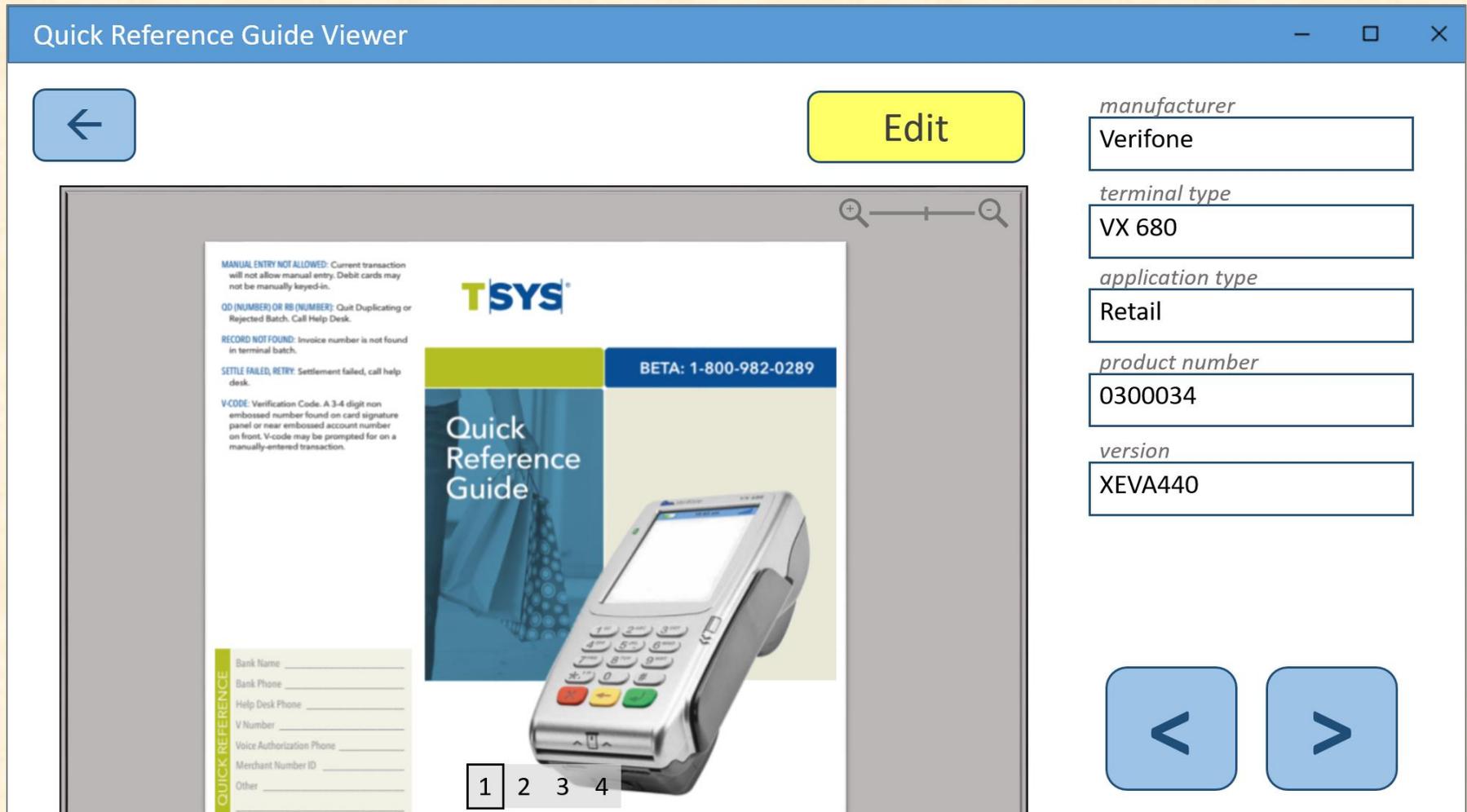
**VERIFONE VX 520**  
XEVA440  
RESTAURANT



*showing top viewed*



# Screen Mockup: QRG View Screen



# Screen Mockup: QRG Edit Screen

Quick Reference Guide Viewer

← [Camera] [Document] [Trash] [Trash] Save

*manufacturer*  
Verifone

*terminal type*  
VX 680

*application type*  
Retail

*product number*  
0300034

*version*  
XEVA440

Add comment ...

< >

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

1 2 3 4

Bank Name \_\_\_\_\_  
Bank Phone \_\_\_\_\_  
Help Desk Phone \_\_\_\_\_  
V Number \_\_\_\_\_  
Voice Authorization Phone \_\_\_\_\_  
Merchant Number ID \_\_\_\_\_  
Other \_\_\_\_\_

QUICK REFERENCE





# Screen Mockup: QRG Admin Screen

Quick Reference Guide Viewer

←

 Search user ... 

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

The Phoenix Group  
An INGRAM MICRO Company

SEARCH PRODUCTS BROWSE PRODUCTS OUR SERVICES ABOUT LOGIN TPG CANADA

WELCOME TO  
**THE PHOENIX GROUP**  
RISING TO NEW LEVELS IN POS

BROWSE PRODUCTS OUR SERVICES

Phoenix Group

Phoenix Group  
Hey there! How can we help?

What brands do you work with?

Phoenix Group  
We are one of the few distributors who have a direct relationship with VeriFone, Equinox, Ingenico, Magtek, RDM, Techtrex, PAX and Dejavo.

Does my equipment come with a warranty?

Phoenix Group  
Yes, all new equipment come with the manufacture's standard warranty and all refurbished equipment come with a 1 year warranty from The Phoenix

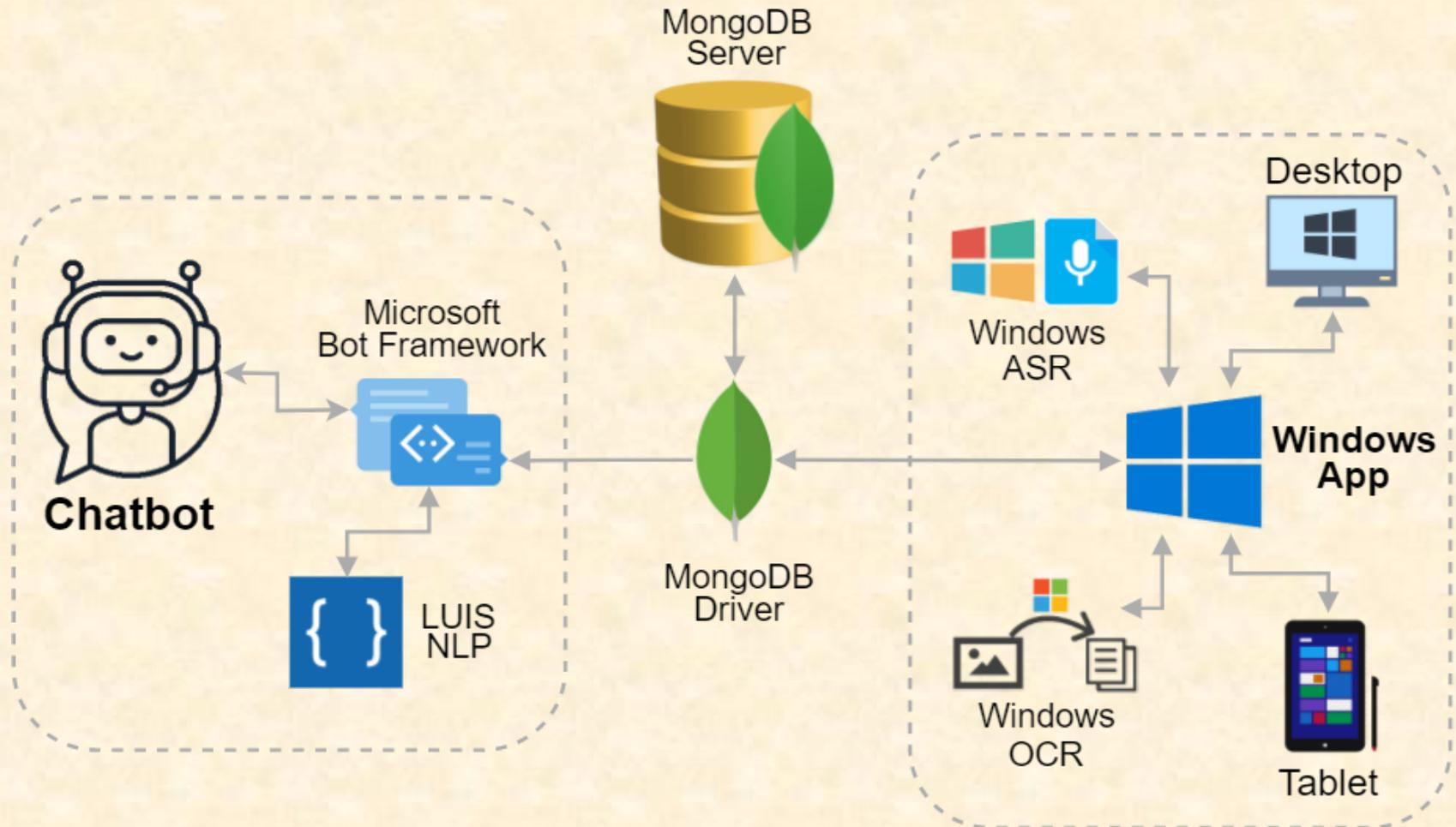
Reply

# 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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