MICHIGAN STATE UNIVERSITY

Project Plan

Intelligent Real World Text Recognition

The Capstone Experience

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From Students…
…to Professionals

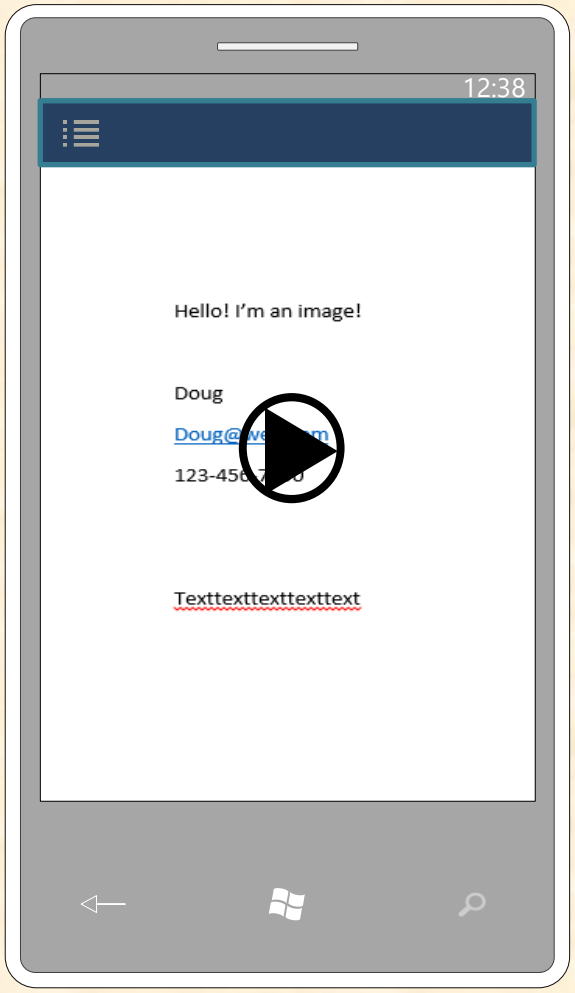
Functional Specifications

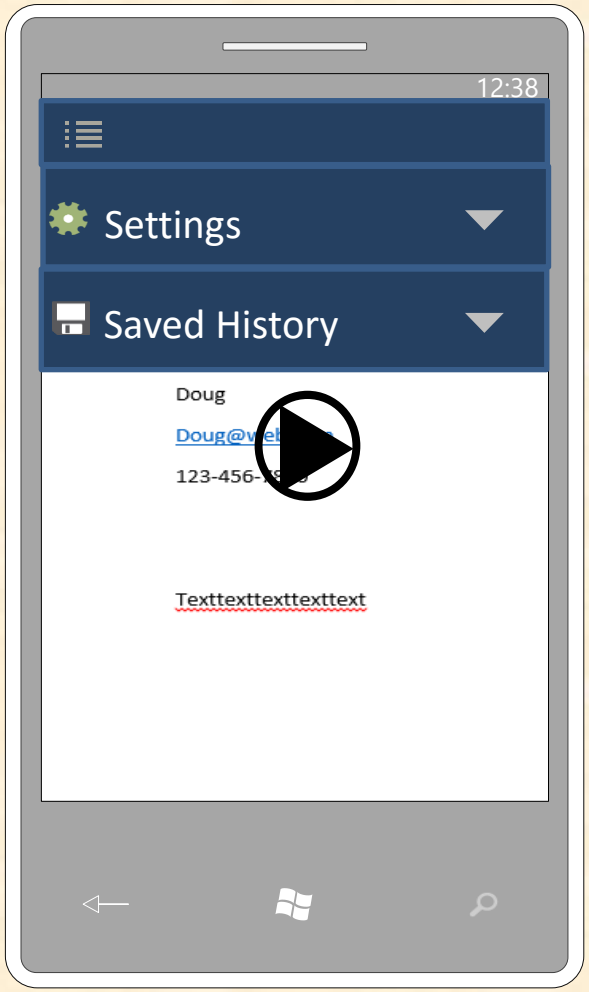
- Efficiently recognize text and perform appropriate actions
- Options to easily save text and retrieve for later use
- Accessibility for users who are visually impaired

Design Specifications

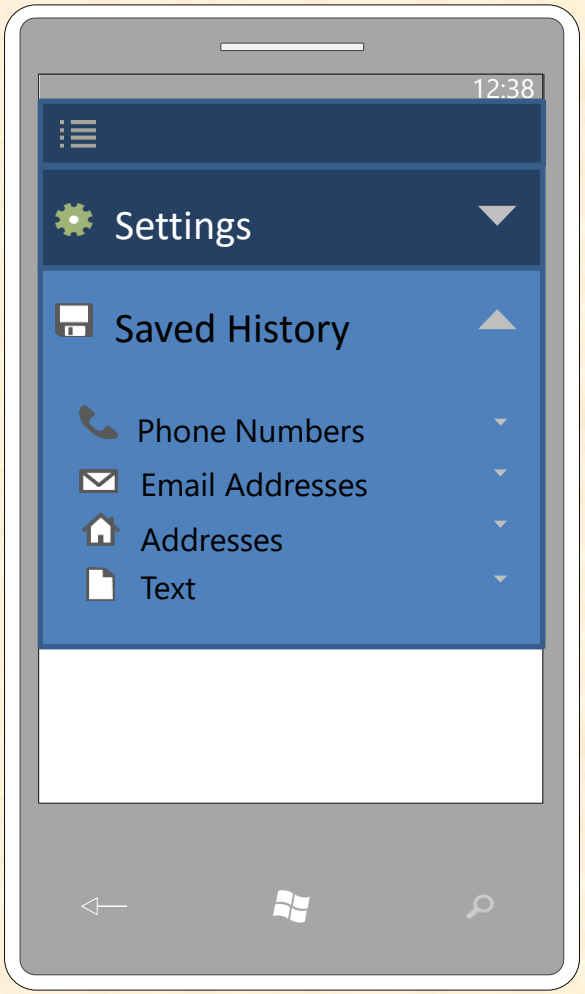
- Camera to capture real time images
- Simplistic and accessible user interface
  - Adjustable for different devices
  - Supports built in Windows 10 Narrator
- Easily access stored data

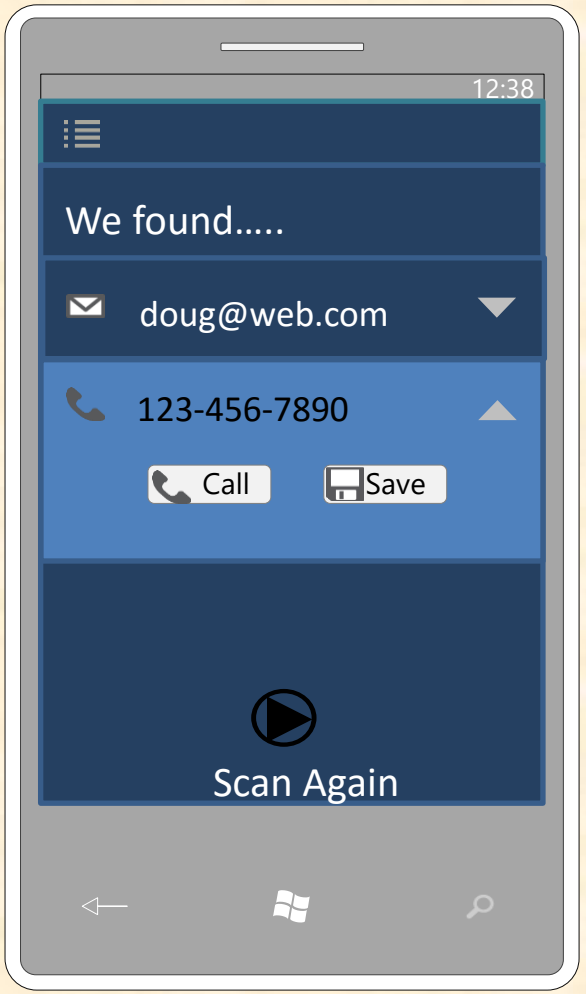
Screen Mockup: Windows Phone



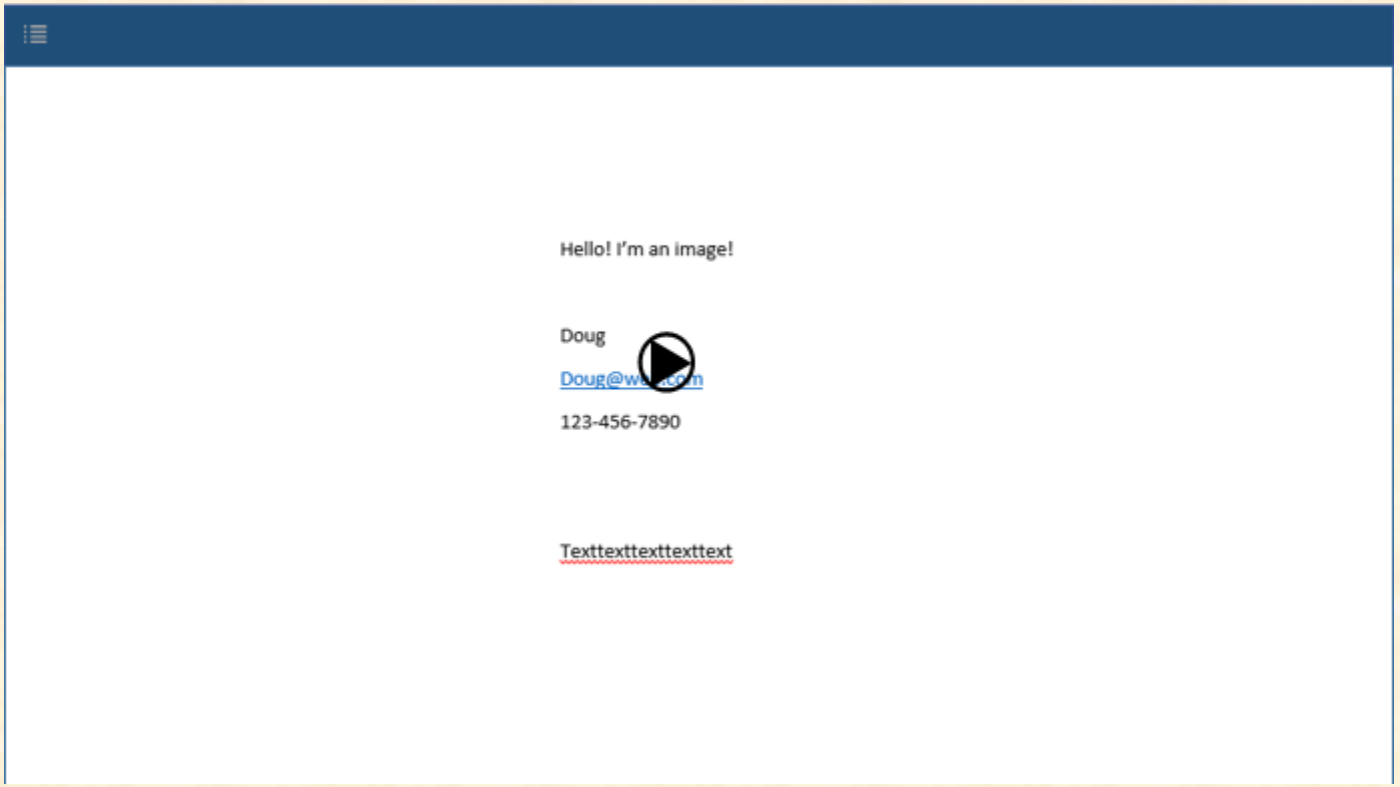


Screen Mockup: Windows Phone





Screen Mockup: Windows Computer and Tablet



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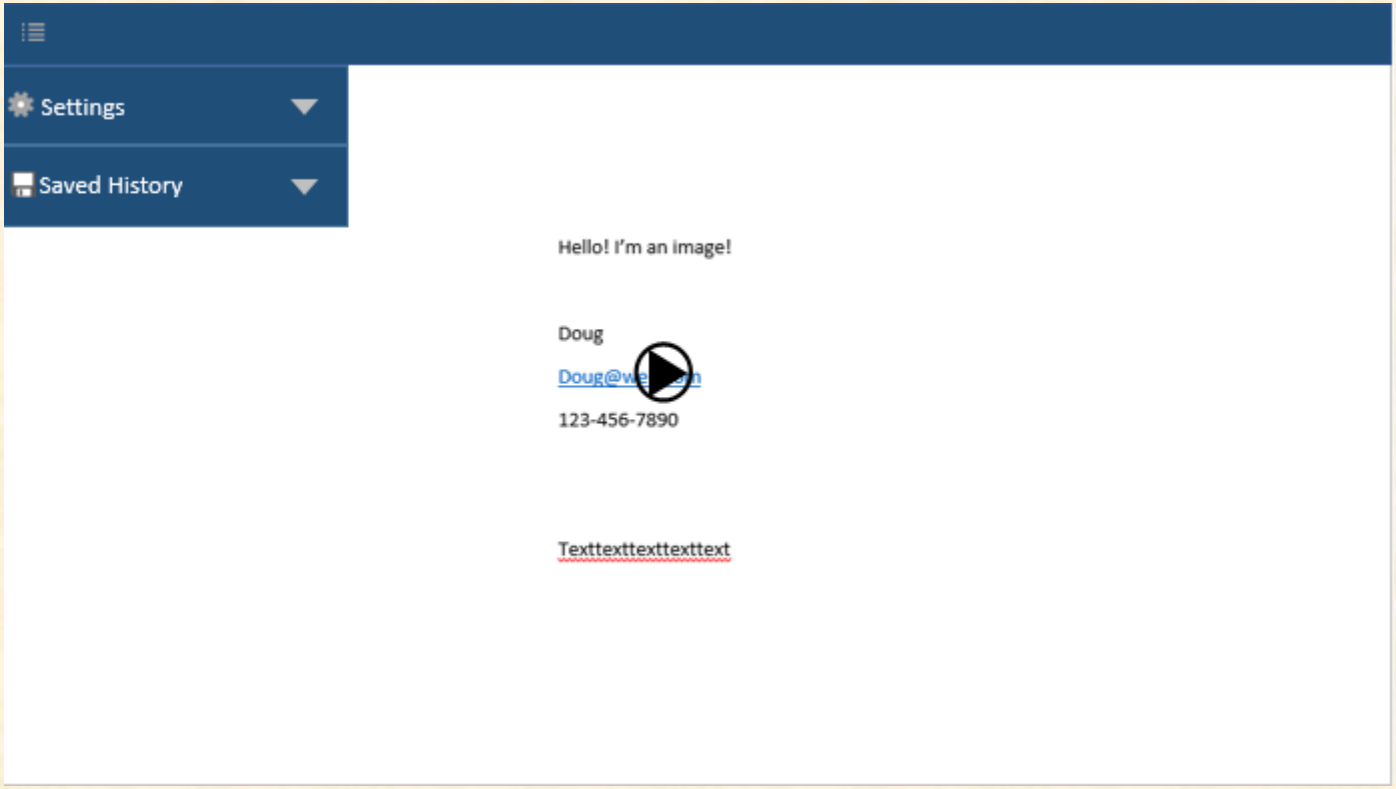

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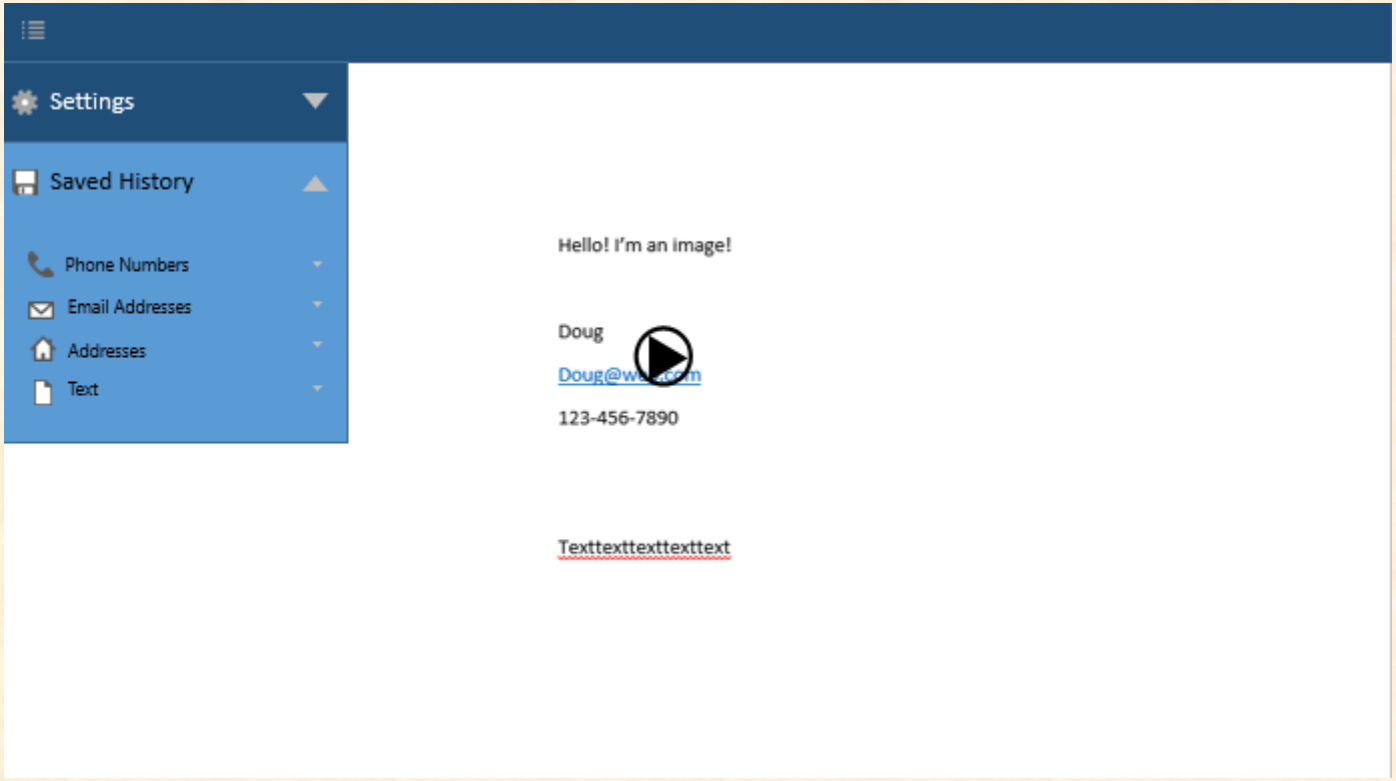

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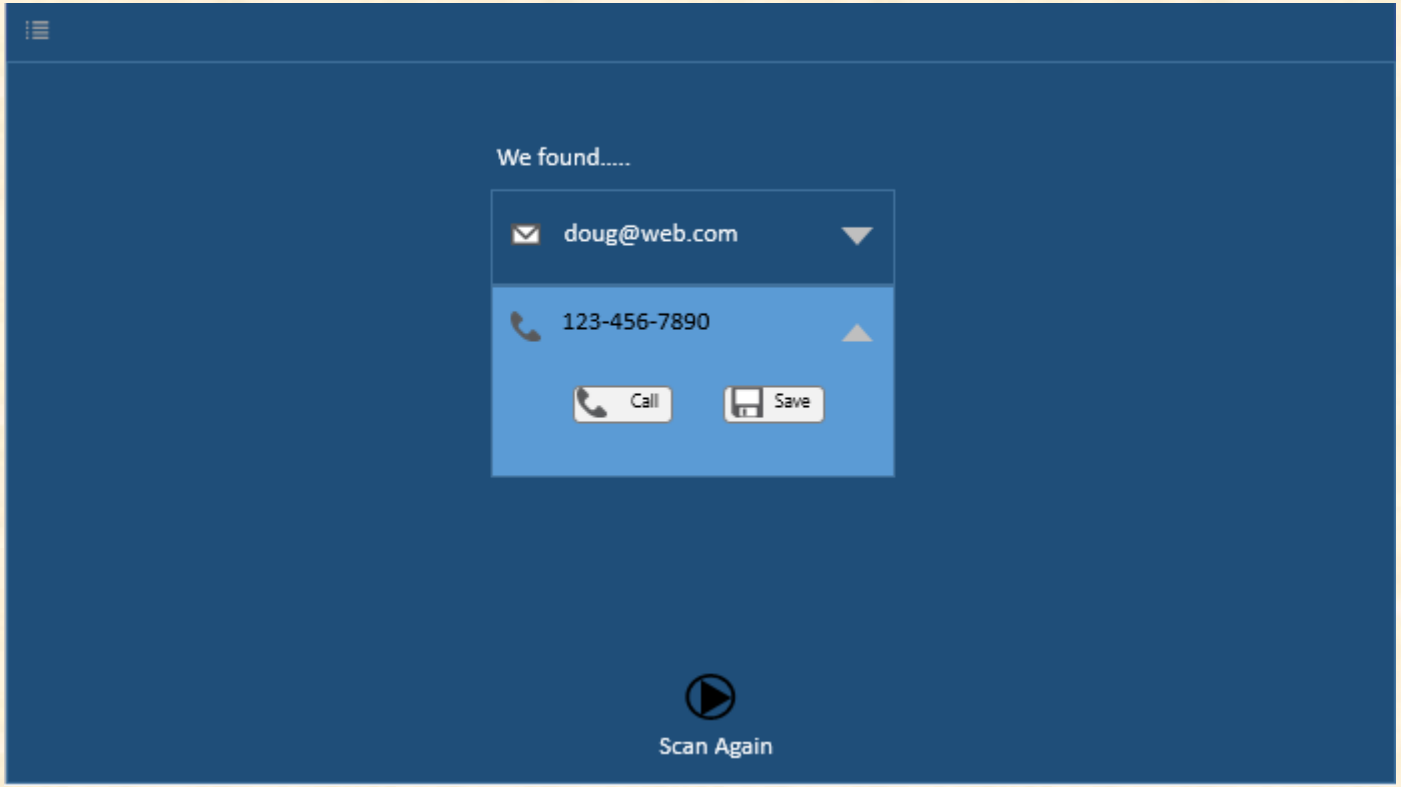
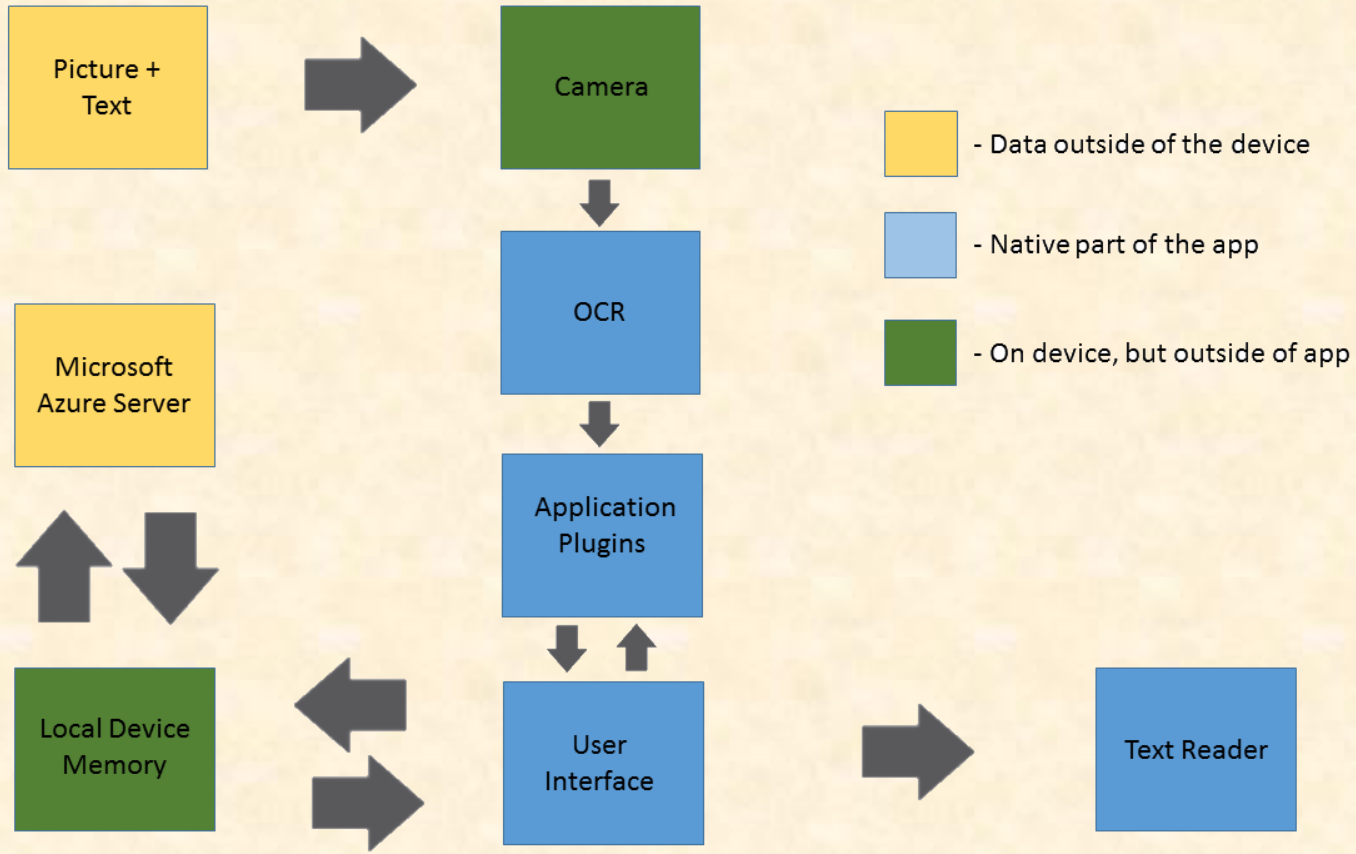


Technical Specifications

- Takes in image, produces string
- String is interpreted through regular expressions
- User chooses to send the string to one of the following:
  - Text-To-Speech engine
  - System memory
  - Appropriate action
- Strings can be sent to and retrieved from server

System Architecture



System Components

- Hardware Platforms
  - Windows 10 desktop
  - Windows Phone
  - Windows Tablet
  - Raspberry Pi
- Software Platforms / Technologies
  - Languages: C#/XAML
  - Developed in Visual Studio 2015
  - Windows Optical Character Recognition Engine
  - Microsoft Azure Server

Testing

- Lots of manual testing is vital
- Test on development machine first
- Deploy to other devices using direct connection or emulators
- Have to test under many different conditions
  - Lighting and position will not always be ideal

Risks

- Windows 10 Development Environment
  - The development environment is prone to various bugs which could result in a showstopper
  - Mitigation: Researching various workarounds and documentations posted online
- Potentially Inaccessible Tools
  - Our software needs to meet accessibility standards
  - Mitigation: Gather accessible tools

Risks

- Lack of experience with Raspberry Pi
  - Deployment to Raspberry pi is a requirement during the latter portion of our project
  - Mitigation: Research software development on Raspberry Pi
- Unfamiliarity with Microsoft Azure
  - Microsoft Azure Cloud will serve as a backend-cloud server
  - Mitigation: Looking up documentation for Microsoft Azure