Project Plan

Intune Company Portal Helper Bot

The Capstone Experience

Team Microsoft

Anh Nguyen
David Saksa
Lefan Zhang
Nicholas Bunton
Ramon Niebla

Department of Computer Science and Engineering
Michigan State University

Spring 2017

Functional Specifications

- Create a chat bot capable of automatically providing related documents according to user's questions or problems.

- If no documents are found, chat bot will provide options for user to report a bug.

- Chat bot will do self training according to the feedback users provide after using the bot.

- Provides real time solutions for problems without the need for human intervention.

System Components

- Hardware Platforms
  - None
- Software Platforms / Technologies
  - Microsoft Bot Framework (C#)
  - LUIS
  - Android (Java)
  - Microsoft Azure
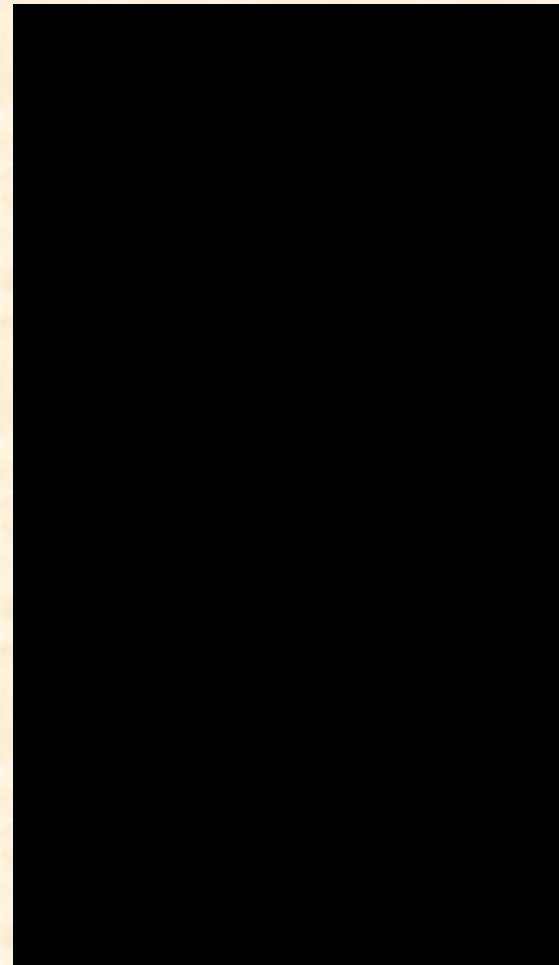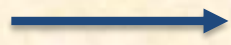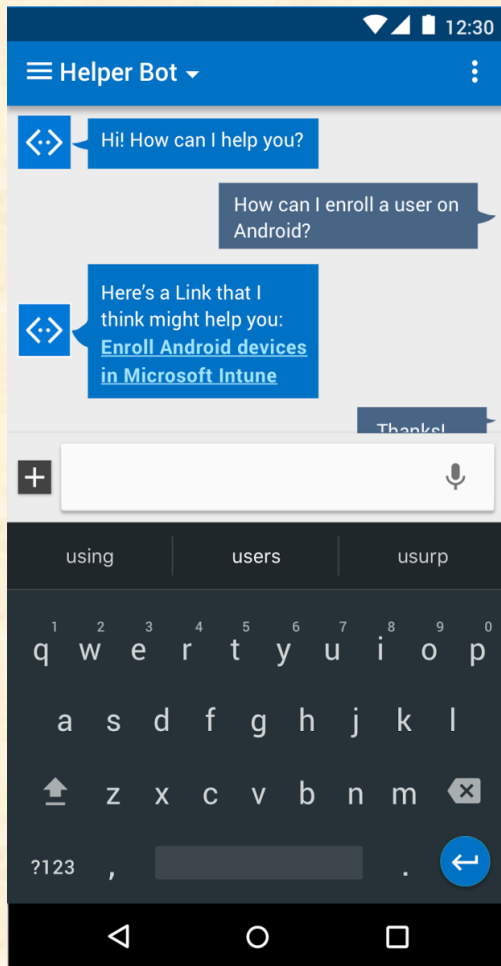 - Direct Line API (Java)
  - GitHub Search API
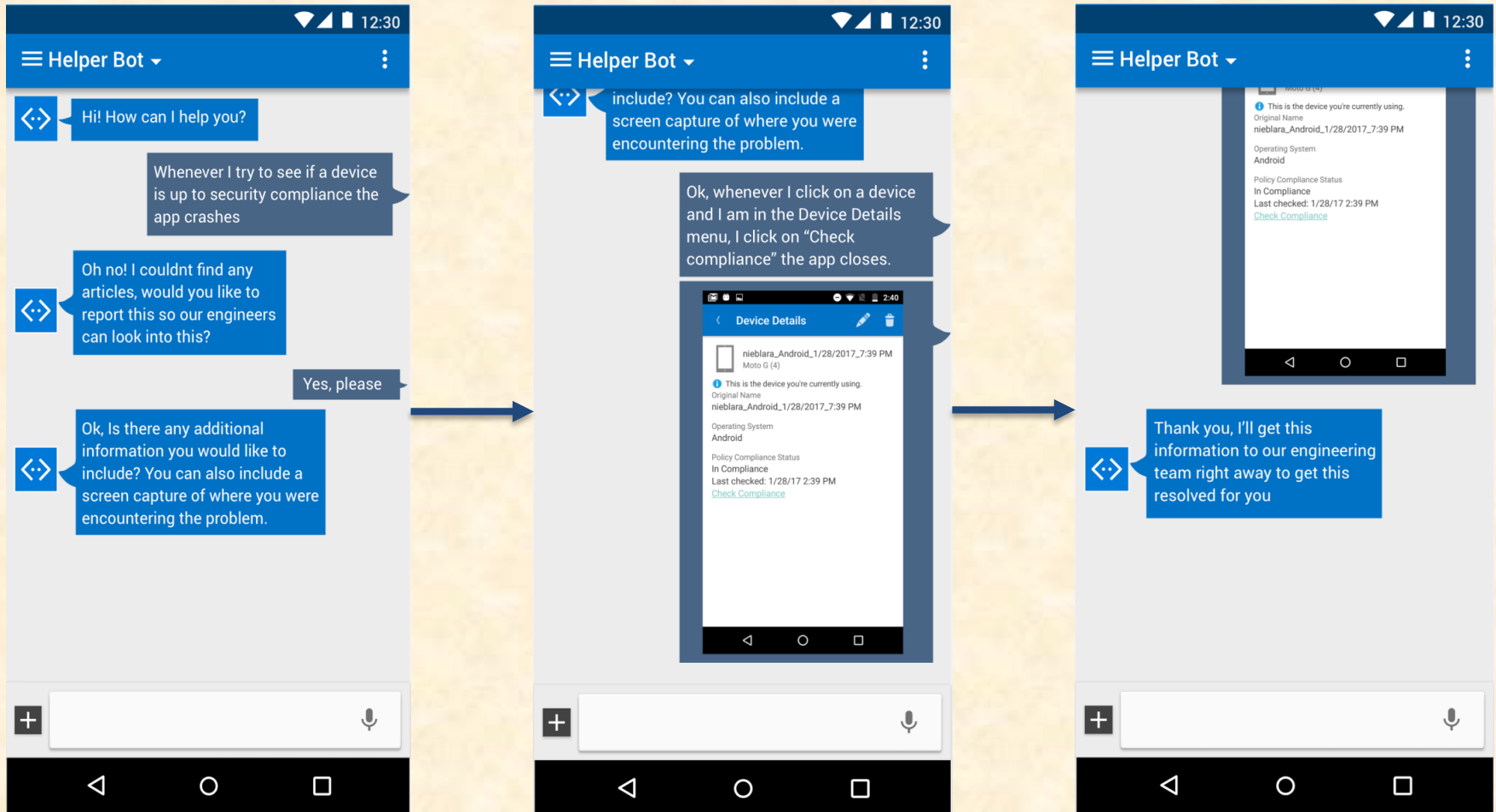
Design Specifications

- The Intune Company Portal Helper bot is designed for the user to interact and talk to the bot in a question-answer manner.
- The user interface allows the user to input messages and expect the bot to return a sophisticated and programmed response.
- Users are able to see message history as well as attachment files in the same session.
- Users are able to click on the bot-provided links to open in a web view client inside the application.

Screen Mockup: Bot Provides link

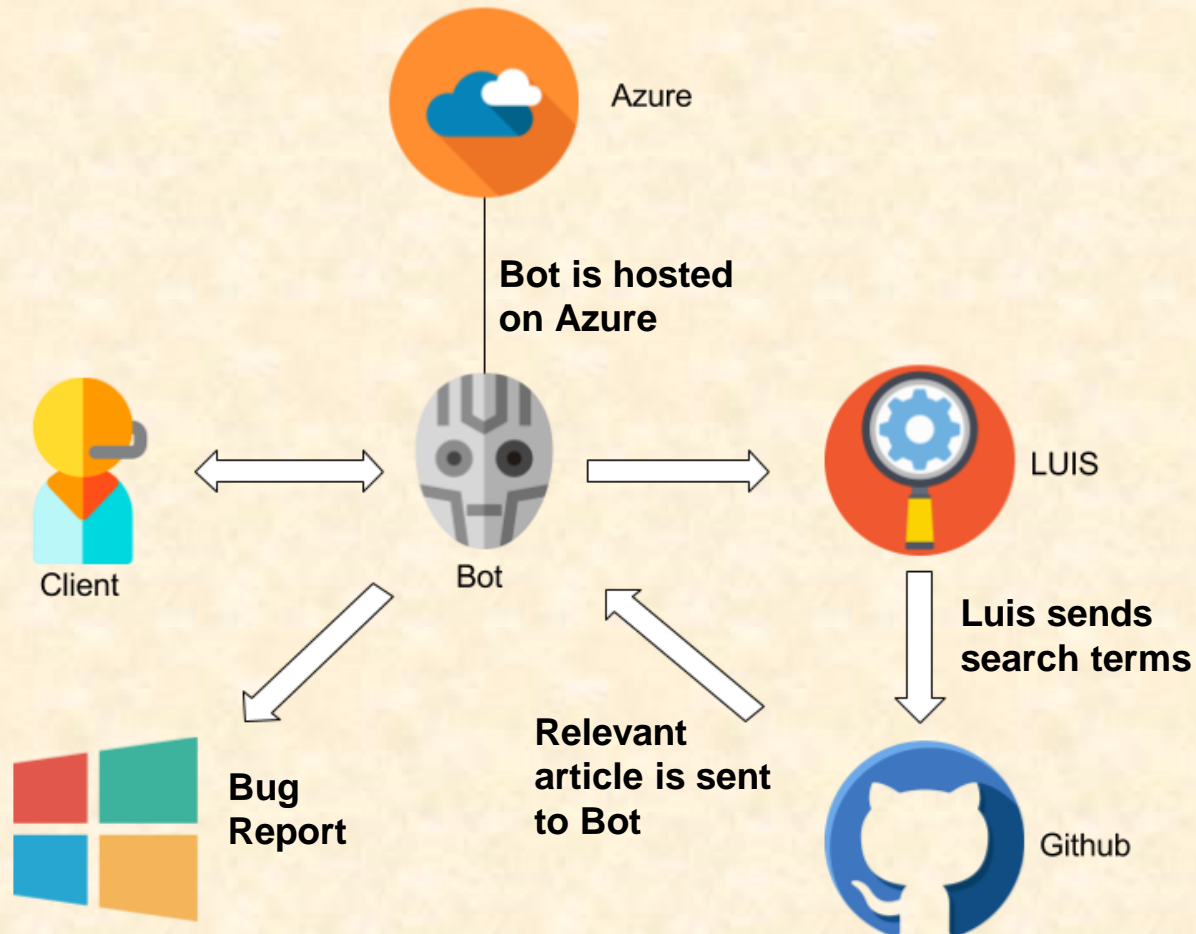# Screen Mockup: Bot asks for bug report

Technical Specifications

- API
  - GitHub Search API - searches for proper articles
  - Direct Line API - conversation between Bot/Intune user
- Software Technologies
  - Microsoft Bot Framework (C#) - used to develop bot
  - LUIS - natural language framework to teach intents
  - Android (Java) - mobile application with chat interface
  - Microsoft Azure Bot Services - hosts bot
- Development Environments
  - Visual Studio using the Microsoft Bot Framework (C#)
  - Android Studio

System Architecture

Azure

Bot is hosted on Azure

Client

Bot

LUIS

Luis sends search terms

Bug Report

Relevant article is sent to Bot

Github

Testing

- Tools : Microsoft Bot Emulator
- Local Test : Test out the bot locally using the Microsoft Bot Emulator, in which the bot performance can be analyzed to ensure accuracy.
- Prototype Test : Develop a prototype for the bot that the Microsoft Android Company Portal team will test out the bot. The testing team will be able to ask the bot frequently asked questions and report test bugs and our team will receive and analyze that data to see if there are ways to improve the user experience.

Risks

- <u>Microsoft Bot Framework</u>
  - Description : The framework that the team will be using to develop a natural language processing bot. None of the team members have worked with the bot framework before. This bot framework is the essential for the project.
  - Mitigation : Review the documentation of the Microsoft Bot Framework, as well as going over various tutorials of how to use the framework.
- <u>REST API with Microsoft Azure Bot Services</u>

  - Description : Android mobile application will use REST APIs to send messages to the bot from the Intune Company Portal user and vice versa. The format of the messages will be a JSON object and will need to be formatted to fit into the Android application chat interface. The bot should be able to handle multiple types of data and information.

  - Mitigation : Review Azure Bot Services documentation and go over tutorials. Experiment with the Azure IDE available through the Azure website.

Risks

- <u>LUIS (Language Understanding Intelligence Services)</u>
    - Description : Advanced natural language processing framework, which has the ability to determine the intent(s) of a conversation. LUIS also has the ability to be trained to make itself smarter from learning from data. Since LUIS is relatively young, the team must find unique ways to handle many different intents.
    - Mitigation : Create test models to find optimal ways to train LUIS. Create automatic models to optimize the fluidity of the conversation between the user and bot. Review documentation and tutorials to understand how to use it.

- <u>Android Development</u>
    - Description : The team has to develop an Android application that allows a Microsoft Intune user to have a conversation with the developed bot. Since the team has little experience with Android this will be a challenge.
    - Mitigation : Reviewing documentation and going over tutorials.

Questions?

? ? ? ?

? ? ?

?