

# Project Report on

## Intelligent Customer Help Desk with Smart Document Understanding

**Domain:** Artificial Intelligence

**Start Date:** 05/05/2020

**Project Duration:** 20 days

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**Guidance:** SmartBridge

## 1. Introduction

### 1.1 Overview

The typical customer care chatbot can answer simple questions, such as store locations and hours, directions, and maybe even making appointments. When a question falls outside of the scope of the pre-determined question set, the option is typically to tell the customer the question isn't valid or offer to speak to a real person.

### 1.2 Purpose

When customer has a question about the operation of a device, the application shall pass the question onto Watson Discovery Service, which has been pre-loaded with the device's owners manual. So now, instead of "Would you like to speak to a customer representative?" it returns relevant sections of the owners manual to help solve customers' problems.

## 2. Literature Survey

### 2.1 Existing Problem

In a chatbot, when a question falls outside of the scope of the pre-determined question set, the option is typically to tell the customer the question isn't valid or offer to speak to a real person. This slows down the process and customer becomes helpless till a real person can give an answer.

## 2.2 Proposed Solution

The project shall use the Smart Document Understanding feature of Watson Discovery to train it on what text in the owners manual is important and what is not. This will improve the answers returned from the queries.

## 3. Theoretical Analysis

### 3.1 Hardware/ Software Designing

Software shall be designed as per the below flow chart. There are no special hardware requirements for this project.

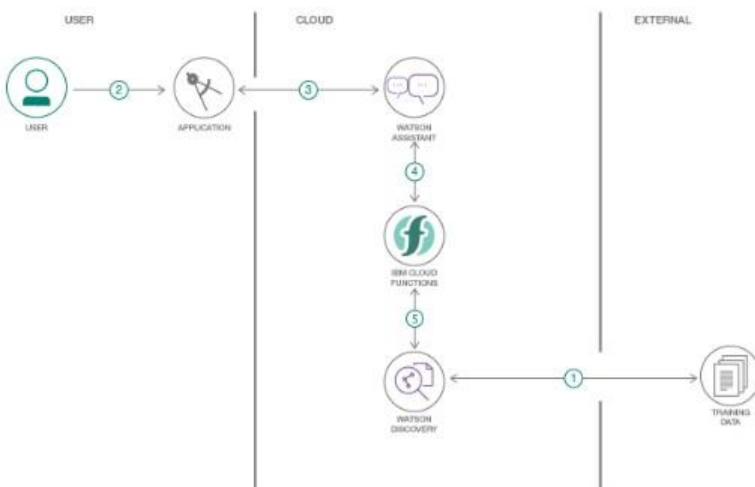
## 4. Experimental Investigations

Following experimental investigations shall make sure that our software will work correctly:

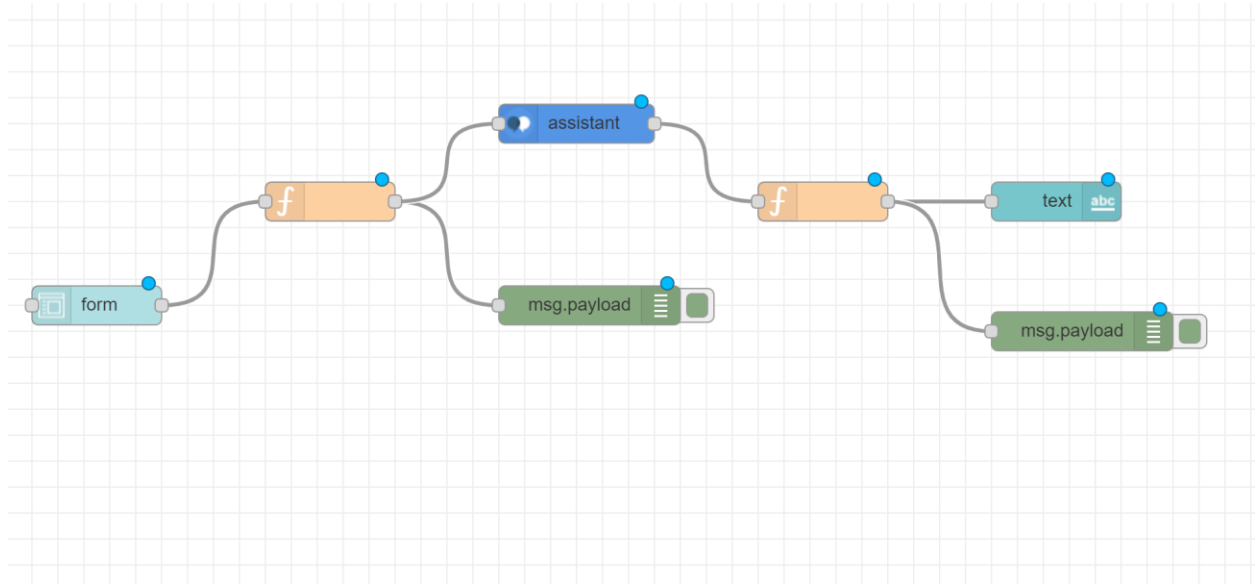
- Before using Node-Red UI, output shall be debugged in the editor itself.
- While using the Watson Assistant, add appropriate Intents, Entities and Dialog. Train the assistant and try it till accurate answers are obtained.
- To investigate the Watson Discovery service, upload the document and train it by manually identifying some of the fields and then search to see if needed results are obtained.

## 5. Flow chart

Application Flow chart:



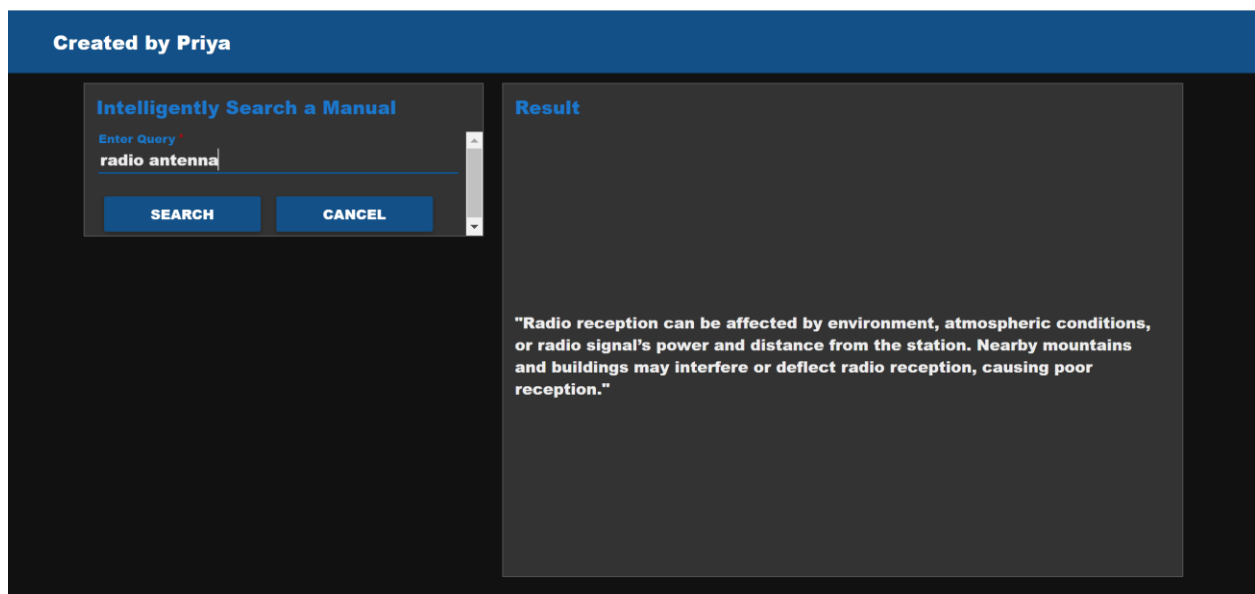
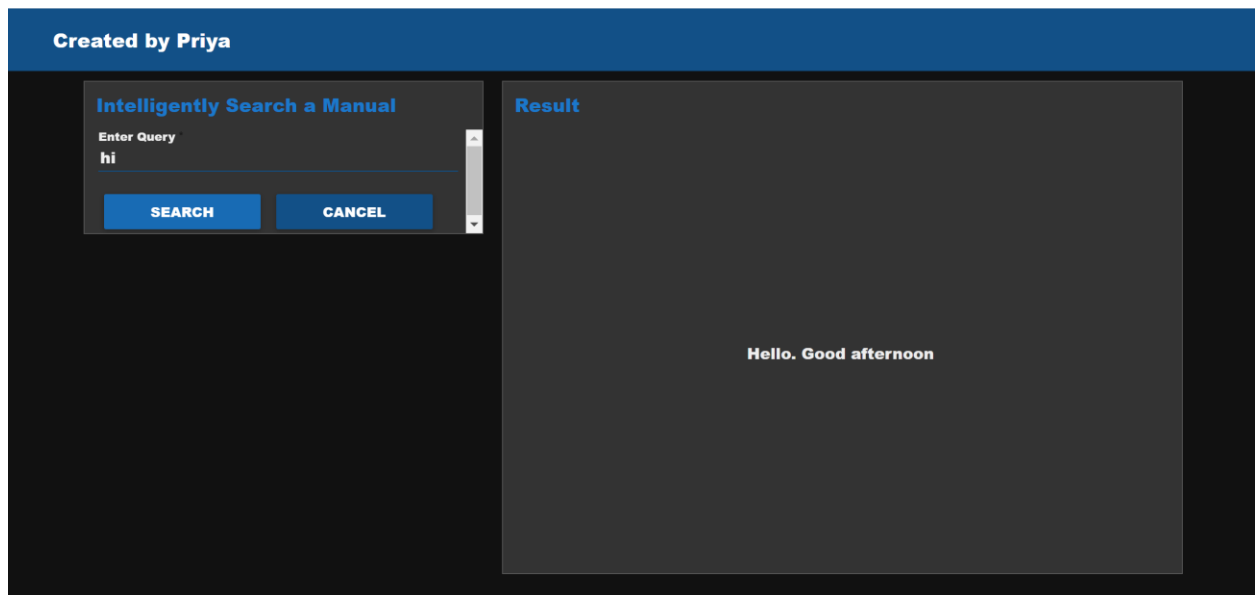
Node-RED Flow Chart:



## 6. Results

- Created a customer care dialog skill in Watson Assistant.
- Use Smart Document Understanding to build an enhanced Watson Discovery collection that can search appropriate results.
- Created an IBM Cloud Functions web action that allows Watson Assistant to post queries to Watson Discovery.
- Build a Node-Red web application with integration to all these services & deploy the same on IBM Cloud Platform.
- Has a user-friendly UI where the customer can ask query.

Here are some Screenshots from the actual project:



## 7. Advantages & Disadvantages

### 7.1 Advantages

- Customer is able to find the correct page using the service would be satisfied.
- Reduce the workload on customer support of the company.
- Easy to use and can be updated whenever there are any changes.
- Easily accessible and shareable across the world.

### 7.2 Disadvantages

- If the owners Manual is not complete or does not contain comprehensive guide for using the product then the results might be wrong.
- It is assumed that the Smart Document Understanding feature of Watson Discovery to train it on what text in the owners manual is important works properly.

## 8. Applications

Any product or service based company can use to improve customer support. This would decrease the load on employees working in the customer support department and leave them free to attend complex user queries.

## 9. Conclusion

In this project, we used various IBM cloud services like Watson Assistant, Discovery, Node-red and Cloud Functions to create Intelligent Customer Help Desk With Smart Document Understanding.

## 10. Bibliography

- [https://www.ibm.com/cloud/architecture/tutorials/cognitive\\_discovery](https://www.ibm.com/cloud/architecture/tutorials/cognitive_discovery)
- <https://cloud.ibm.com/docs/assistant?topic=assistant-getting-started>
- <https://developer.ibm.com/recipes/tutorials/how-to-create-a-watson-chatbot-on-nodered/>
- <http://www.iotgyan.com/learning-resource/integration-of-watson-assistant-to-node-red>
- <https://github.com/IBM/watson-discovery-sdu-with-assistant>

## 11. Appendix: Node-Red Flow Source Code

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