Topic: Intelligent Customer Help Desk with Smart Document Understanding (SPS_PRO_99)

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1. INTRODUCTION

1.1 Overview

The project is to build intelligent chatbot using Artificial Intelligence and Machine Learning techniques for businesses to scale faster without using excess human resources and for customers to get interactive answers.

1.2 Purpose

The purpose of the project is to build an intelligent and scalable, real-time learning chatbot using IBM Watson that can help the customer efficiently to find anything without help of a human and applying smart document understanding to even make the user manual interactive for the customer.

2. LITERATURE SURVEY

2.1 Existing Problems

The existing problems with businesses are becoming a roadblock to scale faster. These problems consist of limited human resources to handle customer help desk and solve problems of the consumer efficiently. The other problem is the documentation for the product tends to be long and complicated due to certain business requirements and rules.This can lead to loss in service to customer value.

2.2 Proposed Solution

The proposed solution consists of building a highly intelligent chatbot to handle all the customer requirements and provide functions like reminders and transactions with ease. The second problem can be tackled by using Smart Document Understanding by using the IBM Watson Discovery Services . These services can be combined together to make a highly intelligent chatbot service to be embedded into the company website.

3. Theoretical Analysis

3.1. Block Diagram
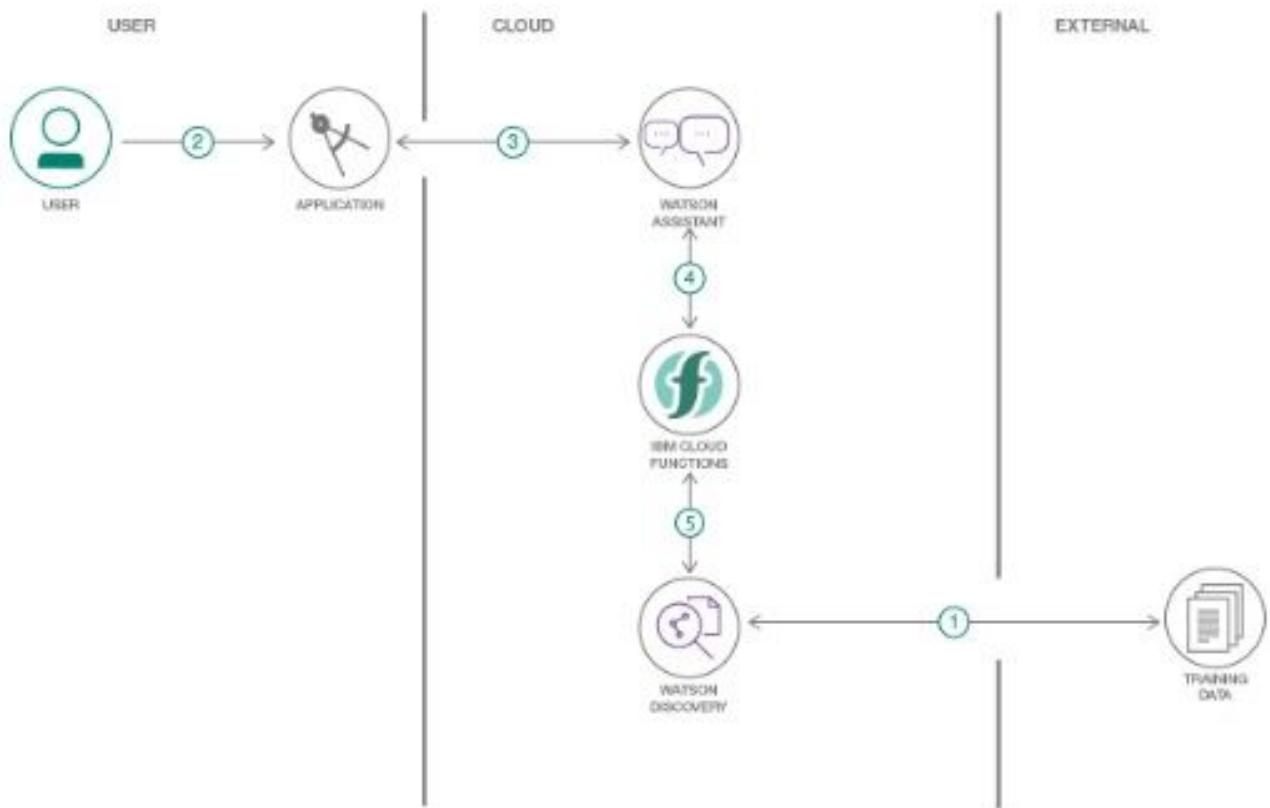
1. The document is annotated using Watson Discovery SDU

2. The user interacts with the backend server via the app UI created using Node-Red. The frontend app UI is a chatbot that engages the user in a Conversation.

3. Dialog between the user and backend server is coordinated using a Watson Assistant dialog skill.

4. If the user asks a product operation question, a search query is passed to a predefined IBM Cloud Functions action.

5. The Cloud Functions action will query the Watson Discovery service and return the results.

6. Integrate all services in Node-RED and create a UI for the same.

3.2 Software Engineering

The Project was kicked off using an Agile process known as Kanban. We used visualization techniques to create simple tasks for the projects. Each Task had to go through (not done, In progress, Review,Completed) columns.Using this software engineering technique, we were able to complete the project in a quick, efficient and complete way.
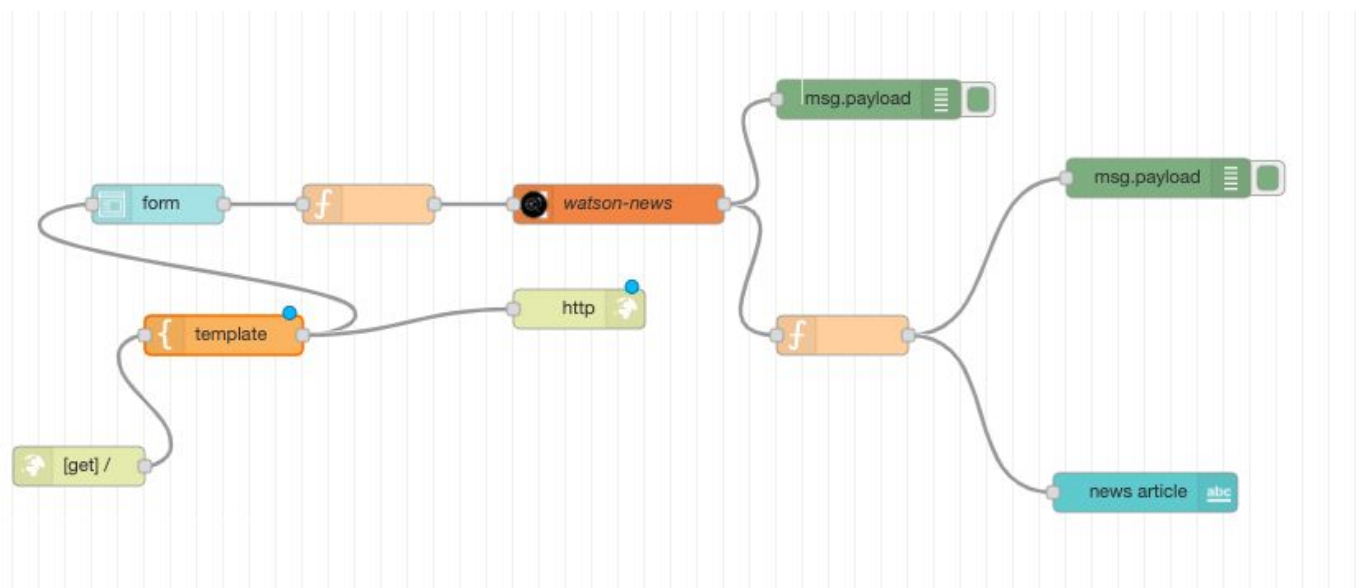
4. Experimental Investigation
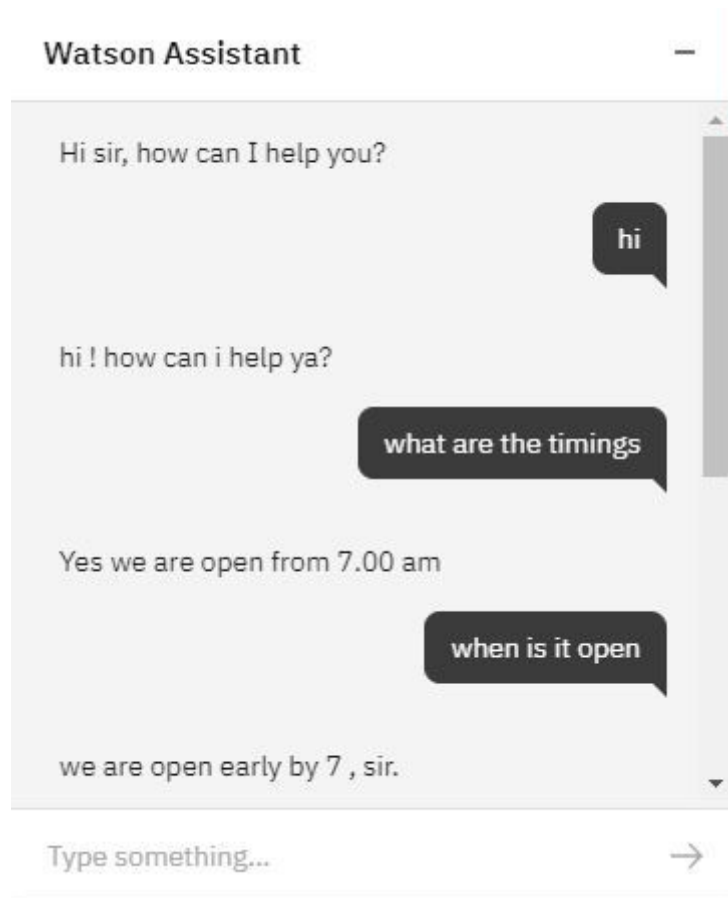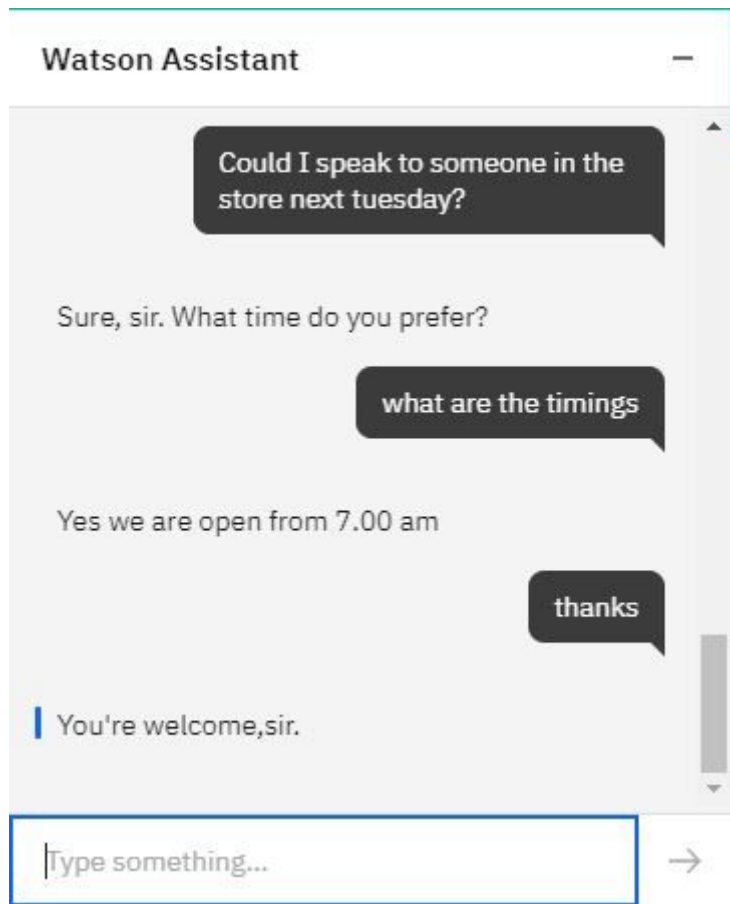
5. Flowchart

6. Result

We have created a AI news search app along with a AI-enabled chatbot that gives interactive answers from documentation made possible with Smart Document Understanding provided by IBM Watson Discovery Services.

7. Advantages & Disadvantages

Advantages:

● Reduced costs

● 24-7 availability

● Learning and updating

● Onboarding and educating customers

● Low interaction with Customer Care executive

● Low workload on employees

Disadvantages:

● Inability to understand if an unsaved query is asked.

● Zero decision-making

● The context and meaning of a question is not understood properly. So may give same answer for multiple sentiments

● May mislead customers

● May give wrong results if not properly configured

8. Applications

● It can be integrated with websites and apps to solve user queries.

● It can be deployed in various social media applications because of preexisting integrations with IBM Cloud Services.

9. Conclusion

Hence, we were able to create a intelligent chatbot with smart document understanding that can fetch answers to the user from a user manual and create an extremely efficient & intelligent chatbot.

10. Future Scope

As per the predictions of tech gurus, the implementation of Artificial Intelligence chatbots will witness an increase, especially in the consumer-based services. The development trends in 2020 show that chatbots will be matching human behavior and providing the same services. Even the customer services present in most of the industries and firms will be carried out by chatbots in a better and efficient manner.

11. Bibliography

Appendix:

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2. Parimi Shiva Kalyan, CH. Vijaya Bhaskar, V. Kakulapati, "Increasing the Efficiency of Outcome in Chatbot by Applying Embedded Search Engine", Recent Innovations in Electrical Electronics & Communication Engineering (ICRIEECE) 2018 International Conference on, pp.2406-2410, 2018.

3. Chetan Surana Rajender Kumar Surana, Shriya, Dipesh B. Gupta, Sahana P. Shankar, "Intelligent Chatbot for Requirements Elicitation and Classification", Recent Trends on Electronics Information Communication & Technology (RTEICT) 2019 4th International Conference on, pp. 866-870, 2019.

A.Source Code

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