**AN ANDROID BASED CONVERSATIONAL CHATTERBOT SYSTEM FOR THE DOMAIN OF NETWORK SECURITY**

**CHAPTER ONE**

1. **Introduction**

Artificial intelligent is commonly defined as the science that developed machine with the ability to interpret, learn and use to learning to achieve specific goal using an external data (Haenlein & Kaplan, 2019). Artificial intelligent can be broadly classify into human-inspired, analytical, and humanize artificial intelligent depending on the category of intelligent it attained (thus, the cognitive, emotional, or social intelligence). AI can also be grouped into Artificial Narrow intelligent, Artificial General Intelligent and Artificial Super Intelligent. Based on regular intervals since the year 1950’s, artificial intelligent expert as predicted that it will only take some few years to reach the Artificial General Intelligence system, which will be capable of showing characteristic that is indistinguishable from that of the humans(Haenlein & Kaplan, 2019).Considering the last two decades Artificial intelligent as witness advancement in intelligent and robotic. The future works in AI is expected to be form spectacular, and many scientist has predicted that artificial intelligent will transform human time consuming task around the word (Agrawal et al., 2019).

Natural language processing is part of computer science, human language processing, and artificial intelligence. The technology is adopted by machines to understand, analyze, manipulate and interpret human languages (Chowdhary *et al.,* 2012). Natural language processing can also be considered as extraction of information from text based on semantic representation. The semantic representation models the concept and relationship between the concept that is most relevant to the target domain, and document. However, the semantic representation must support further processing of the extracted document or text required by the natural language processing application ( Kadlaskar et al., 2021). Considering the huge amount of data and information stored on the internet, which is approximately 20 billion of web pages. Hence the application of processing this large amount of data required the intervention of Natural Language Processing expertise to make meaningful insight from this data. Some common applications of natural language process (NLP) includes the Classification of Text into Categories, indexing and searching of large amount of textual data, its use in carrying out automatic transaction, speech recognition, information extraction (thus, extract useful insight information from large text), Questioning and Answering System. Knowledge Acquisition, Text generation or dialogues, and many more.

Furthermore, a Chatbot is define as a set of program designed to carry out special conversation with human using either text response or audio response. For instance, they exist various Chatbot developed and used for various purposes such as customer support, design, communication, education, finance, analytics, e-commerce and the likes. Moreover, the word chatbot was first introduce by Micheal Mauldin to the world in the year 1994. It makes use of the term chatterbot to describe conversational agent. the use of chatbot in many organizations is becoming popular for internal operation, human resource, customer support, and presently in the area of IoT (thus, Internet-of-things) (Pramod et al., 1966). In the field of artificial intelligent chatbot is known by many names, this include smarbot, chatterbot, interactive agent, talkbot, conversational agent or simply bot. An Intelligent chatbot project is a means of exploring what can be achieved with an artificial agent in the current world today(Lyons, 2017). Chattebot can also be looked at as a conversational agent with user which is mostly equipped with a messenger type interface, which collect an input from user and respond back in either text or audio format. The chatbot process the user input and respond based on the input it collected, which could be a greeting, recommendation or even a specific domain topic conversation (Lyons, 2017). Chattebot is now achieving a considerable amount of impression in modern time. Personal assistant such as Siri is now being adopted by millions of people across the globe. For instance Siri assist in booking flights ticket, helping users to find the best restaurants and the like (Ye, n.d.).

* 1. **Problem Statement**

Considering this modern word, they are huge amount of data or information stored in the cloud. Retrieval of relevant content to solve users’ needs is of great important. However, looking at the field of cyber society (sub field including cryptography, ethical hacking, network security and the like) which consist of many technical term and acronyms. Specifically, Network security threat is one of the most challenging issues faced in an organization, and bringing the awareness to user (thus non-cybersecurity personal) or employee on how to tackle various vulnerability or rule to stay secure will be difficult due to the various technical terms and acronyms used in Network Security domain. Many chartterbot has been developed, but designing conversational agent to enlightening user on all cyber network security domain terms as not be touch. Precise information and awareness on the type, definition, threat each term’s in network security post is essential to be understood by a user in other to appropriately avoid network threat. The unavailability of all this term with contextual details in a general purpose dictionary also lead to difficulties in accessing and understanding this teams easily. A pocket (Android Based) chattbot assistance is developed and train in the domain of network security terms (thus, HTTPS, HTTP, TCP, protocol etc). This system can automatically answer question posed in natural language in other to explain, reply or respond specifically for network security terms

* 1. **Aim and Objectives**

The aim of this research work is to design and develop an Android Based Conversational Chattbot system for the domain of network security. To actualize this, aim the following objectives as to be attained.

1. Dataset Gathering and Collection
2. To train of chatterbot using the dataset
3. To implement the trained chatterbot
4. To evaluate the implement chatbot system
   1. **Scope and Limitations**

This research work tends to focuses on the cyber security network security domain, other area or domain such as networking, ethical hacking, cryptography, and the like is not considered in this research work. Moreover, some term’s is span over multiple domain such term’s is also considered as long as it’s used in network security domain

* 1. **Motivation of the Sturdy**

Based on the difficulties in remembering of technical term’s related to a domain, and time wasted for sourcing for precise information remotely such as the internet. Many chartterbot has been developed, but designing conversational agent to enlightening user on all cyber security network security terms as not be touch. This brought about the concept of designing a chatterbot to reply or respond to user conversation as input in a textual format. However, not every user as access to the internet but with the availability of an agent on our mobile devices capable of responding to network security question OTG (on-the-go) will be a great achievement, and not just that user will have the perception of be responded to by some network security expert at the other end. Not knowing they are being attendant to by an AI agent.

* 1. **Operation Terms Definitions**

AI – Artificial Intelligent

OTG – On The Go

HTTP – Hypertext Transfer Protocol

HTTPs – Hypertext Transfer Protocol Text

TCP – Transfer Control Protocol

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