

ABSTRACT

Tea plantations are an essential part of the agricultural sector, contributing significantly to the economies of many countries. Visitors often come to tea plantations for tourism, research, or routine visits. Natural Language Processing (NLP) is a branch of artificial intelligence focused on the interaction between computers and human language. Its primary goal is to enable computers to understand, interpret, and generate human language. Developing a robot based on NLP technology for interaction with visitors at tea plantations, with a focus on educational purposes at PPTK Gambung, this robot was tested using alpha testing methods with 20 accurate questions, yielding appropriate answers. The developed Graphical User Interface (GUI) includes a main menu with options for rules, about, and exit. Analysis of the robot's responses showed a high success rate, with 18 out of 20 attempts being successful, resulting in a 90% success rate. The two failures were due to the complexity of the code that had not been simplified. Further testing examined the impact of internet connection on the voicebot's response, revealing that Wi-Fi connections were faster than mobile data connections by 0.56 seconds in speed comparison. Subsequently, beta testing was conducted with 10 users, yielding results showing 90% accuracy on questions 1 and 2. Questions 3 and 5 had an accuracy of 98%, questions 6 and 8 had an accuracy of 96%, and questions 4, 7, 9, and 10 achieved 100% accuracy, meaning the voicebot answered all attempts correctly. The results of this study indicate the potential for using NLP-based robots to enhance visitor experience and attraction at tea plantations.

Keywords: NLP, GUI, speechrecognition, Wi-Fi.