PROJECT REPORT

VIRTUAL ASSISTANT DEVELOPMENT USING SPEECH RECOGNITION WITH DEEP NEURAL NETWORK ALGORITHM

BAYU CANDRA SENO AJI
18.K1.0013

Faculty of Computer Science
Soegijapranata Catholic University
2022

APPROVAL AND RATIFICATION PAGE

Judul Tugas Akhir	: Virtual Assistant Development Using Speech Recognition with Deep Neural Network Algorithm
Diajukan oleh	: Bayu Candra Seno Aji
NIM	: 18.K1.0013
Tanggal disetujui	: 06 Januari 2022
Telah setujui oleh	
Pembimbing	: Yonathan Purbo Santosa S.Kom., M.Sc
Penguji 1	: Yonathan Purbo Santosa S.Kom., M.Sc
Penguji 2	: Y.b. Dwi Setianto S.T., M.Cs.
Penguji 3	: Rosita Herawati S.T., M.I.T.
Penguji 4	: Yulianto Tejo Putranto S.T., M.T.
Penguji 5	: Hironimus Leong S.Kom., M.Kom.
Penguji 6	: R. Setiawan Aji Nugroho S.T., MCompIT., Ph.D
Ketua Program Studi	: Rosita Herawati S.T., M.I.T.
Dekan	: Dr. Bernardinus Harnadi S.T., M.T.

Halaman ini merupakan halaman yang sah dan dapat diverifikasi melalui alamat di bawah ini.

sintak.unika.ac.id/skripsi/verifikasi/?id=18.K1.0013

STATEMENT OF ORIGINALITY

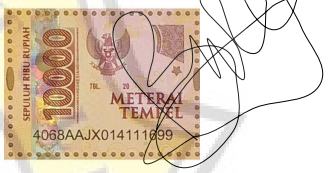
I, the undersigned:

Name : BAYU CANDRA SENO AJI

ID : 18.K1.0013

Certify that this project was made by myself and not copy or plagiarize from other people, except that in writing expressed to the other article. If it is proven that this project was plagiarizes or copy the other, I am ready to accept a sanction.

Semarang, January, 11, 2022



BAYU CANDRA SENO AJI

18.K1.0013

APPROVAL PAGE FOR PUBLICATION OF SCIENTIFIC PAPERS FOR ACADEMIC INTEREST

The undersigned:

Name	: BAYU CANDRA SENO AJI
Undergraduate Program	: INFORMATICS ENGINEERING
Faculty	: COMPUTER SCIENCE
Type of work	: THESIS

Approved to give Non-Exclusive Royalty Free Right to Soegijapranata Catholic University Semarang for scientific work entitled “Virtual Assistant Development Using Speech Recognition With Deep Neural Network Algorithm” along with the existing tools (if needed). With this Non-Exclusive Royalty Free Right Soegijapranata Catholic University has the right to store, transfer data / format, manage in the form database, maintain and publish this final project as long as I keep my name as a writer / creator and as a Copyright owner

This statement I made in truth

Semarang, January, 11, 2022

BAYU CANDRA SENO AJI

18.K1.0013

ACKNOWLEDGMENT

First of all, I want to thank God Almighty for giving me the opportunity so that I can get to this stage and gain as much experience and knowledge as I can.

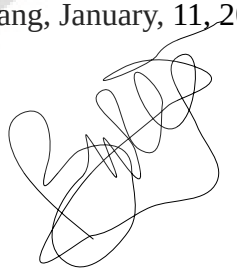
I realize that this thesis I wrote is far from perfect and there are still many shortcomings but I hope that what I do can be reference and can help others.

Certainly in working on the thesis can not be separated from the people who support me to achieve my goals and success. With all respect and humility I would like to thanks for :

1. My supervisor Mr. Yonathan Purbo Santosa, S.Kom, M.Sc for being patient in the process of guidance and teaching me a lot of knowledge that I got from him and the examiners who later tested me in the final session of my project.
2. To the family I love and always support me, my father, mother, brother who always gives my best for me and my future.
3. For all my friends and the environment that supports and shaped me until now and my extended family of Unika Soegijapranata, especially the Faculty of Computer Science that facilitates and prepares all the college needs that I need so that I can study comfortably and can finish my studies on time.

Finally, hopefully what I do in this thesis can be received and also I hope to be developed again for the better.

Semarang, January, 11, 2022



BAYU CANDRA SENO AJI

18.K1.0013

ABSTRACT

Speech recognition is artificial intelligence in the form of a virtual assistant that can be used by giving commands to a computer in the form of sound. In this case, I tried to develop my own speech recognition system using neural network algorithms.

First, to develop speech recognition, the step that needs to be considered is to choose the appropriate dataset. The dataset used is a sound sample in the form of audio used as input. To implement speech recognition also requires algorithms to process datasets and tested with different parameters so that the accuracy of the algorithms used can produce maximum results.

The result of this project is to determine how accurate the system is in processing datasets in the form of sound samples, as well as comparing algorithms between Deep Neural Network with Convolutional Neural Network.

Keyword: artificial intelligence, speech recognition, deep neural network, virtual assistant, convolutional neural network

TABLE OF CONTENTS

LIST OF FIGURE

LIST OF TABLE