PROJECT REPORT

AUTOMATIC CHICKEN FARM FEEDING
WITH IOT CONTROLLING SYSTEM

ANTONIUS GEORGE RAYNALDI E.B.P
13.02.0063

Faculty of Computer Science
Soegijapranata Catholic University
2017
APPROVAL AND RATIFICATION PAGE

AUTOMATIC CHICKEN FARM FEEDING WITH IOT CONTROLLING SYSTEM

by

ANTONIUS GEORGE RAYNALDI E.B.P. - 13.02.0063

This project report has been approved and ratified by the Faculty of Computer Science on July, 12, 2017

With approval,

Examiners,

1) [Signature]
   Rosita Herman, S.T., M.T.
   NPP: 058.1.2004.263

2) [Signature]
   Shinta Estri Wahyuni, M.Si., M.Cs
   NPP: 058.1.2007.272

3) [Signature]
   Hersonius Lewa, S.Kom., M.Kom
   NPP: 058.1.2007.273

Supervisor,

[Signature]

Dean of Faculty of Computer Science,

[Signature]

NPP: 058.1.2002.254

ii
STATEMENT OF ORIGINALITY

I, the undersigned:

Name : ANTONIUS GEORGE RAYNALDI E.B.P

ID : 13.02.0063

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, July, 12, 2017

ANTONIUS GEORGE RAYNALDI E.B.P
13.02.0063
ABSTRACT

This project was made to solve the problem in terms of irregular chicken feeding due to the distance of the farm owner's house and the location of the farm far away. In a day the owner of the farm can go to the location of his farm up to 4-5 times just to check and feed the cattle.

This project has a solution to the existing problems, namely by making the mechanism of an automatic chicken feeding tool using NodeMcu Microcontroller. This microcontroller will be in contact with ultrasonic sensors that read the height of eating chicken in a chicken feeding place. Results The reading of the distance between the feed to the ultrasonic sensor will be the control for the servo to perform the opening or closing movement. The servo setting for open or closed is derived from NodeMcu which has been configured using arduino IDE. Data from the distance reading results of this ultrasonic sensor will be sent to the IOT broker, so that breeders can monitor the tool is working properly.

This project proves that by utilizing Microcontroller then the existing problems can be solved well. Breeders no longer need to check and feed the chicken up to 4-5 times a day. With this project checking and feeding the animals can be done automatically and more efficiently.

Keyword: Microcontroller NodeMcu, Ultrasonic Sensor, IOT Broker
PREFACE

In this report, there are 6 chapters. Chapter I will discuss the background of the problems and limits on the project. In chapter II will discuss comparisons with pre-existing projects. In chapter III will discuss the research methodology. In chapter IV will discuss the analysis and design of the project using flowchart and design scheme. Then in chapter V will discuss about program implementation and experimental mechanism of the project. Then in chapter VI will discuss the conclusions of the authors and future projects.
# TABLE OF CONTENTS

**CHAPTER 1 INTRODUCTION**................................................................................................. VIII  
  1.1 Background.................................................................................................................. viii  
  1.2 Scope............................................................................................................................ ix  
  1.3 Objective...................................................................................................................... ix  
**CHAPTER 2 LITERATURE STUDY**................................................................................. 10  
  2.1 HC-SR04.......................................................................................................................... 12  
  2.2 NodeMcu........................................................................................................................ 13  
  2.3 Motor Servo.................................................................................................................. 15  
  2.4 RTC DS3231................................................................................................................ 16  
**CHAPTER 3 RESEARCH METHODOLOGY**...................................................................... 17  
**CHAPTER 4 ANALYSIS AND DESIGN**.......................................................................... 19  
  4.1 Analysis......................................................................................................................... 19  
  4.2 Design............................................................................................................................ 19  
    4.2.1 Flowchart.................................................................................................................. 19  
    4.2.2 Design Schematic...................................................................................................... 20  
**CHAPTER 5 IMPLEMENTATION AND TESTING**......................................................... 22  
  5.1 Implementation............................................................................................................ 22  
    5.1.1 Arduino IDE............................................................................................................... 22  
    5.2 Testing......................................................................................................................... 26  
**CHAPTER 6 CONCLUSION**............................................................................................ 29  
REFERENCES..................................................................................................................... 29  
APPENDIX........................................................................................................................... A
TABLE OF FIGURE

Figure 1: HC-SR04........................................................................................................... 12
Figure 2: NodeMcu ESP8266......................................................................................... 13
Figure 3: Servo SG-90................................................................................................. 15
Figure 4: RTC DS3231.................................................................................................. 16
Figure 5: Flowcart........................................................................................................... 19
Figure 6: Design Schematic......................................................................................... 20
Figure 7: Connection with wifi and broker................................................................. 26
Figure 8: Measuring the distance............................................................................... 27
Figure 9: Graph............................................................................................................. 27
Figure 10: Data bucket................................................................................................. 28
Figure 11: Monitoring Device...................................................................................... 28