

CONTENTS

| | |
|--|-----------|
| Agreement Page | |
| Originality Statements | |
| ABSTRACT | iv |
| GRATITUDE NOTE | v |
| Contents | vi |
| List of Figures | ix |
| List of Tables | xi |
| 1 INTRODUCTION | 1 |
| 1.1 Background | 1 |
| 1.2 Problem Formulation | 2 |
| 1.3 Objectives | 2 |
| 1.4 Scope of Works | 3 |
| 1.5 Research Method | 3 |
| List of Appendices | 1 |
| 2 BASIC CONCEPT | 4 |
| 2.1 Internet of Things | 4 |
| 2.2 Pet Feeder | 5 |
| 2.3 Hardware | 5 |
| 2.3.1 Arduino Mega 2560 | 6 |
| 2.3.1.1 Software Arduino | 6 |
| 2.3.2 ESP8266 | 7 |
| 2.3.3 Buzzer | 8 |
| 2.3.4 Motor Servo | 9 |
| 2.3.5 Liquid Crystal Display (LCD) 20 x 4. | 10 |
| 2.3.6 Real Time Clock (RTC) | 11 |
| 2.3.7 Loadcell | 12 |

| | | |
|----------|---|-----------|
| 2.3.7.1 | loadcell operating principle | 12 |
| 2.3.7.2 | Strain Gauge | 12 |
| 2.3.8 | HX711 Module | 13 |
| 2.3.9 | Ultrasonic Sensor | 13 |
| 2.4 | Cat | 14 |
| 3 | SYSTEM METHOD | 15 |
| 3.1 | Research methods | 15 |
| 3.2 | Blok Diagram | 15 |
| 3.3 | Flowchart | 17 |
| 3.4 | System Design | 19 |
| 3.4.1 | Pet Feeder Components | 20 |
| 3.4.1.1 | Hardware | 20 |
| 3.4.1.2 | Pet Feeder System Circuit Schematic | 26 |
| 3.4.1.3 | Software Desain | 27 |
| 3.5 | Testing Scenarios | 27 |
| 4 | RESULT AND ANALYSIS | 29 |
| 4.1 | RTC DS1307 Module Testing | 29 |
| 4.1.1 | Equipment used | 29 |
| 4.1.2 | Testing Step | 29 |
| 4.1.3 | Testing Method | 30 |
| 4.1.4 | Testing Result | 30 |
| 4.2 | Load cell Module Testing | 30 |
| 4.2.1 | Equipment used | 30 |
| 4.2.2 | Testing Step | 31 |
| 4.2.3 | Calibration Process | 31 |
| 4.2.4 | Testing Method | 32 |
| 4.2.5 | Testing Result | 32 |
| 4.3 | ESP8266 Testing | 33 |
| 4.3.1 | Equipment used | 33 |
| 4.3.2 | Testing Step | 34 |
| 4.3.3 | Testing Method | 34 |
| 4.3.4 | Testing Result | 35 |
| 4.4 | Motor Servo Testing | 35 |
| 4.4.1 | Equipment used | 36 |
| 4.4.2 | Testing Step | 36 |
| 4.4.3 | Testing Method | 36 |

| | | |
|----------|--|-----------|
| 4.4.4 | Testing Result | 37 |
| 4.5 | Ultrasonic Sensor Testing | 38 |
| 4.5.1 | Equipment used | 38 |
| 4.5.2 | Testing Step | 38 |
| 4.5.3 | Testing Method | 38 |
| 4.5.4 | Testing Result | 39 |
| 4.6 | Liquid Crystal Display (LCD) Testing | 40 |
| 4.6.1 | Equipment used | 40 |
| 4.6.2 | Testing Step | 40 |
| 4.6.3 | Testing Method | 40 |
| 4.6.4 | Testing Result | 41 |
| 4.7 | Buzzer Sensor Testing | 41 |
| 4.7.1 | Equipment Used | 42 |
| 4.7.2 | Testing Step | 42 |
| 4.7.3 | Testing Method | 42 |
| 4.7.4 | Testing Result | 42 |
| 5 | CONCLUSION AND SUGGESTION | 44 |
| 5.1 | Conclusion | 44 |
| 5.2 | Suggestion | 44 |
| | Bibliography | 45 |
| | A Appendix | |