

## DAFTAR ISI

|                                              |      |
|----------------------------------------------|------|
| ABSTRAK .....                                | i    |
| <i>ABSTRACT</i> .....                        | ii   |
| LEMBAR PENGESAHAN .....                      | iii  |
| LEMBAR PERNYATAAN ORISINALITAS .....         | iv   |
| KATA PENGANTAR .....                         | i    |
| DAFTAR ISI.....                              | ii   |
| DAFTAR GAMBAR .....                          | vi   |
| DAFTAR TABEL.....                            | vii  |
| DAFTAR LAMPIRAN.....                         | viii |
| DAFTAR ISTILAH .....                         | ix   |
| BAB I    PENDAHULUAN.....                    | 1    |
| I.1    Latar Belakang .....                  | 1    |
| I.2    Perumusan Masalah.....                | 3    |
| I.3    Tujuan Penelitian.....                | 3    |
| I.4    Batasan Penelitian .....              | 3    |
| I.5    Manfaat Penelitian.....               | 3    |
| I.6    Sistematika Penulisan.....            | 4    |
| BAB II   TINJAUAN PUSTAKA.....               | 6    |
| II.1    Jamur Tiram .....                    | 6    |
| II.2 <i>Internet of Things</i> .....         | 6    |
| II.2.1    Raspberry Pi Zero 2W.....          | 7    |
| II.2.2    DHT11 .....                        | 8    |
| II.2.3    Raspberry Pi Camera Module 3 ..... | 9    |
| II.3    Otomatisasi Sistem IoT .....         | 9    |
| II.4    Teknologi Pendukung.....             | 10   |

|           |                                                              |    |
|-----------|--------------------------------------------------------------|----|
| II.4.1    | Aiven.....                                                   | 10 |
| II.4.2    | PostgreSQL .....                                             | 10 |
| II.4.3    | Firebase .....                                               | 10 |
| II.4.4    | Node.js .....                                                | 11 |
| II.4.5    | Python .....                                                 | 11 |
| II.5      | Software Development Life Cycle .....                        | 12 |
| II.5.1    | <i>Agile Model</i> .....                                     | 12 |
| II.5.2    | <i>Waterfall Model</i> .....                                 | 12 |
| II.5.3    | <i>Prototype Model</i> .....                                 | 13 |
| II.6      | <i>Testing</i> .....                                         | 13 |
| II.6.1    | <i>Unit Testing</i> .....                                    | 13 |
| II.6.2    | <i>Integration Testing</i> .....                             | 13 |
| II.7      | <i>Mean Absolute Error (MEA)</i> .....                       | 14 |
| II.8      | Penelitian Terdahulu.....                                    | 15 |
| II.9      | Alasan Pemilihan Teori, Kerangka Kerja, atau Mekanisme ..... | 24 |
| BAB III   | METODE PENYELESAIAN MASALAH.....                             | 25 |
| III.1     | Kerangka Berpikir.....                                       | 25 |
| III.2     | Sistematika Penyelesaian Masalah .....                       | 26 |
| III.2.1   | Tahap Pendahuluan .....                                      | 27 |
| III.2.2   | Tahap <i>Waterfall</i> .....                                 | 27 |
| III.2.2.1 | <i>Requirements Analysis</i> .....                           | 27 |
| III.2.2.2 | <i>System Design</i> .....                                   | 27 |
| III.2.2.3 | <i>Implementation</i> .....                                  | 28 |
| III.2.2.4 | <i>Testing</i> .....                                         | 28 |
| III.2.3   | Tahap Penutup.....                                           | 28 |
| III.3     | Pengumpulan Data .....                                       | 29 |

|         |                                                          |    |
|---------|----------------------------------------------------------|----|
| III.4   | Pengolahan Data atau Pengembangan Produk / Artifak ..... | 29 |
| III.5   | Metode Evaluasi .....                                    | 30 |
| BAB IV  | PENYELESAIAN MASALAH .....                               | 31 |
| IV.1    | <i>Requirements Analysis</i> .....                       | 31 |
| IV.1.1  | Analisis Proses Bisnis Eksisting .....                   | 31 |
| IV.1.2  | Kebutuhan Fungsional dan Non-Fungsional.....             | 32 |
| IV.1.3  | Spesifikasi Perangkat .....                              | 33 |
| IV.2    | <i>System Design</i> .....                               | 34 |
| IV.2.1  | Arsitektur Sistem.....                                   | 34 |
| IV.2.2  | <i>Entity Relationship Diagram (ERD)</i> .....           | 35 |
| IV.2.3  | <i>Activity Diagram</i> .....                            | 38 |
| IV.3    | <i>Implementation</i> .....                              | 41 |
| IV.3.1  | Konfigurasi Awal Sistem .....                            | 41 |
| IV.3.2  | DHT11 .....                                              | 42 |
| IV.3.3  | Raspberry Pi Camera Module 3 .....                       | 42 |
| IV.3.4  | Integrasi Data ke <i>Database</i> .....                  | 43 |
| IV.3.5  | Otomatisasi Sistem.....                                  | 43 |
| BAB V   | VALIDASI, ANALISIS HASIL, DAN IMPLIKASI .....            | 45 |
| V.1     | Pengujian dan Evaluasi .....                             | 45 |
| V.1.1   | <i>Unit Testing</i> .....                                | 45 |
| V.1.1.1 | DHT11 .....                                              | 45 |
| V.1.1.2 | Raspberry Pi Camera Module 3.....                        | 49 |
| V.1.2   | <i>Integration Testing</i> .....                         | 50 |
| V.1.2.1 | DHT11 .....                                              | 50 |
| V.1.2.2 | Raspberry Pi Camera Module 3.....                        | 51 |
| V.2     | Implikasi Hasil Tugas Akhir .....                        | 51 |

|                      |                            |    |
|----------------------|----------------------------|----|
| BAB VI               | KESIMPULAN DAN SARAN ..... | 53 |
| VI.1                 | Kesimpulan .....           | 53 |
| VI.2                 | Saran .....                | 53 |
| DAFTAR PUSTAKA ..... |                            | 55 |
| LAMPIRAN .....       |                            | 60 |