

## DAFTAR ISI

|   |            |
|---|------------|
| <b>LEMBAR PERNYATAAN.....</b>                 | <b>ii</b>  |
| <b>LEMBAR PENGESAHAN.....</b>                 | <b>iii</b> |
| <b>KATA PENGANTAR.....</b>                    | <b>iv</b>  |
| <b>ABSTRAK.....</b>                           | <b>vi</b>  |
| <b>DAFTAR ISI .....</b>                       | <b>vii</b> |
| <b>DAFTAR GAMBAR.....</b>                     | <b>x</b>   |
| <b>DAFTAR TABEL.....</b>                      | <b>xii</b> |
| <b>BAB I PENDAHULUAN.....</b>                 | <b>1</b>   |
| 1.1 Latar Belakang.....                       | 1          |
| 1.2 Rumusan Masalah.....                      | 2          |
| 1.3 Tujuan.....                               | 2          |
| 1.4 Batasan Masalah.....                      | 2          |
| 1.5 Metode Penelitian.....                    | 3          |
| 1.6 Sistematika Penulisan.....                | 3          |
| <b>BAB II LANDASAN TEORI.....</b>             | <b>5</b>   |
| 2.1 Tinjauan Pustaka .....                    | 5          |
| 2.2 Mikrokontroler.....                       | 8          |
| 2.3 Arduino Uno.....                          | 9          |
| 2.4 Fingerprint.....                          | 10         |
| 2.5 Unlock Door.....                          | 11         |
| 2.6 Buzzer.....                               | 11         |
| 2.7 LCD.....                                  | 12         |
| 2.8 Komunikasi Serial.....                    | 13         |
| 2.9 Solenoida (Solenoid).....                 | 14         |
| 2.9.1 Solenoida Linier (Linear Solenoid)..... | 15         |
| 2.9.2 Solenoida Rotasi (Rotary Solenoid)..... | 15         |
| 2.10 Keypad.....                              | 16         |
| 2.11 Modul SIM900A.....                       | 17         |
| 2.12 SMS (Short Message Service).....         | 17         |

|   |           |
|---|-----------|
| 2.13 Motor Servo.....                             | 19        |
| <b>BAB III PERANCANGAN ALAT &amp; SISTEM.....</b> | <b>21</b> |
| 3.1 Umum.....                                     | 21        |
| 3.2 Diagram Blok.....                             | 21        |
| 3.3 Perancangan Hardware.....                     | 23        |
| 3.3.1 Perancangan Mekanik.....                    | 23        |
| 3.3.2 Perancangan Elektrik.....                   | 24        |
| 3.4 Perancangan Software.....                     | 30        |
| 3.5 Flowchart Alat.....                           | 33        |
| 3.6 Deskripsi Kerja Alat.....                     | 34        |
| <b>BAB IV PENGUJIAN DAN ANALISA.....</b>          | <b>35</b> |
| 4.1 Hasil Perancangan.....                        | 35        |
| 4.2 Pengujian Catu Daya.....                      | 36        |
| 4.3 Pengujian Fingerprint.....                    | 36        |
| 4.3.1 Pengukuran Tegangan Fingerprint.....        | 38        |
| 4.3.2 Pengujian Respon waktu Fingerprint.....     | 38        |
| 4.3.3 Hasil Pengujian.....                        | 39        |
| 4.3.4 Hasil Program Pengujian Fingerprint.....    | 40        |
| 4.4 Pengujian Keypad.....                         | 41        |
| 4.4.1 Hasil Pengujian.....                        | 42        |
| 4.4.2 Hasil Program Pengujian Keypad.....         | 43        |
| 4.5 Pengujian SIM900A.....                        | 44        |
| 4.5.1 Hasil Pengujian.....                        | 45        |
| 4.5.2 Hasil Program Pengujian SIM 900A.....       | 45        |
| 4.6 Pengujian Keseluruhan.....                    | 46        |
| 4.6.1 Hasil Program Keseluruhan.....              | 48        |
| 4.6.2 Prinsip Kerja Sistem.....                   | 48        |
| <b>BAB V PENUTUP.....</b>                         | <b>50</b> |
| 5.1 Kesimpulan.....                               | 50        |
| 5.2 Saran.....                                    | 50        |
| <b>DAFTAR PUSTAKA.....</b>                        | <b>51</b> |



UNIVERSITAS  
MERCU BUANA