

## DAFTAR ISI

|  |          |
|--|----------|
| ABSTRAK .....                              | i        |
| ABSTRACT .....                             | ii       |
| KATA PENGANTAR .....                       | iii      |
| DAFTAR ISI .....                           | v        |
| DAFTAR GAMBAR .....                        | viii     |
| DAFTAR TABEL .....                         | xi       |
| DAFTAR SIMBOL .....                        | xiv      |
| DAFTAR LAMPIRAN .....                      | xx       |
| <b>BAB 1    PENDAHULUAN .....</b>          | <b>1</b> |
| 1.1    Latar Belakang Masalah .....        | 1        |
| 1.2    Identifikasi Masalah .....          | 2        |
| 1.3    Maksud dan Tujuan .....             | 3        |
| 1.4    Batasan Masalah .....               | 3        |
| 1.5    Metodologi Penelitian .....         | 3        |
| 1.5.1    Pengumpulan Data .....            | 4        |
| 1.5.2    Pembangunan Perangkat Lunak ..... | 5        |
| 1.6    Sistematika Penulisan .....         | 6        |
| <b>BAB 2    TINJAUAN PUSTAKA .....</b>     | <b>8</b> |
| 2.1    Babakan Sangkuriang .....           | 8        |
| 2.2    Data Tinggi Muka Air .....          | 8        |
| 2.3    Banjir .....                        | 11       |
| 2.4    Peringatan .....                    | 11       |
| 2.5    Javascript .....                    | 12       |

|              |  |           |
|--------------|--|-----------|
| 2.6          | Cloud Messaging API .....                    | 12        |
| 2.7          | Google Maps API.....                         | 13        |
| 2.8          | Android.....                                 | 13        |
| 2.9          | React Native .....                           | 14        |
| 2.10         | Web Service .....                            | 16        |
| 2.11         | PHP.....                                     | 17        |
| 2.12         | MySQL.....                                   | 17        |
| 2.13         | Global Positioning System .....              | 17        |
| 2.14         | Google Directions API .....                  | 18        |
| 2.15         | JavaScript Object Notation.....              | 19        |
| 2.16         | Application Programming Interface .....      | 22        |
| 2.17         | Firebase Authentication.....                 | 22        |
| 2.18         | Unified Modeling Language .....              | 23        |
| 2.18.1       | Use Case Diagram.....                        | 24        |
| 2.18.2       | Activity Diagram .....                       | 24        |
| 2.18.3       | Class Diagram.....                           | 25        |
| 2.18.4       | Sequence Diagram .....                       | 26        |
| <b>BAB 3</b> | <b>ANALISIS DAN PERANCANGAN SISTEM</b> ..... | <b>28</b> |
| 3.1          | Analisis Sistem .....                        | 28        |
| 3.1.1        | Analisis Masalah.....                        | 28        |
| 3.1.2        | Analisis Proses Bisnis .....                 | 28        |
| 3.1.3        | Analisis Tinggi Muka Air .....               | 34        |
| 3.1.4        | Analisis Arsitektur Sistem .....             | 36        |
| 3.1.5        | Analisis Teknologi Yang Digunakan.....       | 37        |
| 3.1.6        | Analisis Kebutuhan Non Fungsional .....      | 41        |

|       |   |     |
|-------|---|-----|
| 3.1.7 | Analisis Kebutuhan Fungsional Mobile.....   | 44  |
| 3.1.8 | Analisis Kebutuhan Fungsional Backend ..... | 81  |
| 3.2   | Perancangan Sistem.....                     | 105 |
| 3.2.1 | Perancangan Data.....                       | 105 |
| 3.2.2 | Perancangan Menu .....                      | 107 |
| 3.2.3 | Perancangan Antarmuka .....                 | 108 |
| 3.2.4 | Perancangan Pesan.....                      | 114 |
| 3.2.5 | Perancangan Jaringan Semantik .....         | 116 |
| 3.2.6 | Perancangan Endpoint Web Service .....      | 116 |
| BAB 4 | IMPLEMENTASI DAN PENGUJIAN .....            | 122 |
| 4.1   | Implementasi .....                          | 122 |
| 4.1.1 | Implementasi Perangkat Lunak.....           | 122 |
| 4.1.3 | Implementasi Perangkat Keras .....          | 123 |
| 4.1.4 | Implementasi Kelas.....                     | 123 |
| 4.1.5 | Implementasi Antarmuka.....                 | 125 |
| 4.1.6 | Implementasi Database .....                 | 125 |
| 4.1.7 | Implementasi Teknologi .....                | 126 |
| 4.2   | Pengujian .....                             | 133 |
| 4.2.1 | Rencana Pengujian Alpha.....                | 133 |
| 4.2.2 | Pengujian Alpha.....                        | 135 |
| 4.2.3 | Pengujian Beta .....                        | 143 |
| BAB 5 | KESIMPULAN DAN SARAN .....                  | 148 |
| 5.1   | Kesimpulan.....                             | 148 |
| 5.2   | Saran.....                                  | 148 |
|       | DAFTAR PUSTAKA .....                        | 149 |