**LIST OF FIGURES**

|  |  |  |
| --- | --- | --- |
| **Figure** |  | **Page** |
| 1 | Artificial Intelligence Hierarchy | 19 |
| 2 | Machine Learning vs Deep Learning | 20 |
| 3 | Steps of Agile Methodology | 24 |
| 4 | Clean and Dirty video samples | 27 |
| 5 | Ffmpeg Video to Image Convertion | 28 |
| 6 | Sample clean water images | 29 |
| 7 | Sample dirty water images | 29 |
| 8 | System Flowchart of the Machine Learning Module | 31 |
| 9 | Teachable Machine Customization Parameters | 33 |
| 10 | System Architecture ofSmart Turbidity Detection System | 34 |
| 11 | Context Diagram of Smart Water Turbidity Detection System | 36 |
| 12 | Data Flow Diagram of Smart Water Turbidity Detection System | 39 |
| 13 | Entity Relationship Diagram of Smart Water Turbidity Detection Web Application | 42 |
| 14 | Use Case Diagram of Smart Water Turbidity Detection Web Application | 43 |
| 15 | Activity Diagram of Smart Water Turbidity Detection Device | 45 |
| 16 | Schematic Diagram of Smart Water Turbidity Detection Device | 47 |
| 17 | Circuit Design of Smart Water Turbidity Detection Device | 47 |
| 18 | Network Topology of Smart Water Turbidity Detection System | 48 |
| 19 | IoT Security Artichoke | 49 |
| 20 | Raspberry Pi | 53 |
| 21 | Raspberry Pi Camera Module 2 | 53 |
| 22 | SIM800L GSM Module | 54 |
| 23 | 5v 2amps USB Type C Charger | 54 |
| 24 | 9v Battery | 55 |
| 25 | 12V DC Solenoid Valve | 55 |
| 26 | User Registration Page | 68 |
| 27 | Password Reset Page | 69 |
| 28 | Adding New Device | 70 |
| 29 | New Device Entry | 71 |
| 30 | View Device Records | 72 |
| 31 | Initial Boot Update | 73 |
| 32 | User manually turned on the Valve | 74 |
| 33 | Device Detected Dirty Water | 75 |