

LIST OF FIGURES

Figure 1.1 Flow of Research Methods carried out.....	5
Figure 1.2 Process flow analysis and testing	7
Figure 2.1 Use of Cellular, Internet and social media in Indonesia	8
Figure 2.2 Chart of Regulations on the protection of personal data in population administration in Indonesia.....	14
Figure 2.3 Models in ISO/IEC 39794-1:2019.....	20
Figure 2.4 SSL/TLS handshaking protocol operation	22
Figure 3.1 Research flow	24
Figure 3.2 Data utilization device topology.....	37
Figure 3.3 Data Service Access Method.....	39
Figure 3.4 Access flow using REST	43
Figure 3.5 Flow data access without using Biometrics.....	45
Figure 3.6 Flow data access with added facial biometrics.....	49
Figure 3.7 Access flowchart with web portal.....	55
Figure 3.8 Web portal access topology.....	57
Figure 4.1 Simulation topology with existing system.....	81
Figure 4.2 The proposed system simulation topology	82
Figure 4.3 middleware topology	82
Figure 4.4 Process of sending data in simulation.....	84
Figure 4.5 Comparison of topology using encryption and non encryption.....	85
Figure 4.6 Graph of Minimum delay in delivery using images and templates	106
Figure 4.7 Graph of Maximum delay in sending using images and templates	106
Figure 4.8 AVG delivery delay graph using images and templates.....	107
Figure 4.9 Delivery Throughput Graph using images and templates	108
Figure 4.10 Deviation graph of delivery using images and templates	108
Figure 4.11 Comparison of the applied security system framework.....	109
Figure 4.12 Maximum delay in sending data using Without biometric.....	110
Figure 4.13 Minimum delay in sending data using data element.....	110
Figure 4.14 AVG data transmission delay using Without biometric	111
Figure 4.15 Throughput sending data using Without biometric	111
Figure 4.16 Deviation of data transmission using Without biometric	112

