

DAFTAR ISI

ABSTRAK	i
ABSTRACT	ii
KATA PENGANTAR.....	iii
UCAPAN TERIMA KASIH.....	iv
DAFTAR ISI.....	vi
DAFTAR GAMBAR.....	x
DAFTAR TABEL	xii
BAB I PENDAHULUAN.....	1
1.1 Latar Belakang Masalah	1
1.2 Rumusan Masalah.....	2
1.3 Tujuan dan Manfaat.....	2
1.4 Batasan Masalah	2
1.5 Metode Penelitian	3
1.6 Sistematika Penulisan	4
BAB II TINJAUAN PUSTAKA.....	6
2.1 Jaringan <i>Internet of Things (IoT)</i>	6
2.1.1 Arsitektur Jaringan <i>Internet of Things (IoT)</i>	7
2.1.2 Model Komunikasi Jaringan <i>Internet of Things (IoT)</i>	8
2.1.3 Protokol Jaringan <i>Internet of Things (IoT)</i>	9
2.1.4 Keamanan Jaringan <i>Internet of Things (IoT)</i>	9
2.1.5 Aplikasi <i>Internet of Things (IoT)</i>	10
2.2 Protokol <i>Message Queuing Telemetry Transport (MQTT)</i>	11
2.2.1 Arsitektur <i>Message Queueing Telemetry Transport (MQTT)</i>	11
2.2.2 Keamanan <i>Message Queueing Telemetry Transport (MQTT)</i>	13

2.3	Algoritma <i>Fuzzy Logic</i>	14
2.3.1	<i>Fuzzy Membership Function</i>	15
2.3.2	<i>Fuzzifier</i>	16
2.3.3	Variabel Linguistik.....	16
2.3.4	<i>Fuzzy Sets</i>	17
2.3.5	<i>Fuzzy Rule Base</i>	17
2.3.6	<i>Fuzzy Controller</i> atau <i>Fuzzy Inference System (FIS)</i>	18
2.3.7	<i>Deffuzifier</i>	18
2.4	Serangan <i>Denial of Service (DoS)</i>	18
2.5	Simulator <i>COOJA</i>	20
2.6	Parameter Kinerja Algoritma <i>Fuzzy Logic</i>	21
2.6.1	<i>False Positive Ratio (FPR)</i>	23
2.6.2	<i>Accuracy</i>	23
2.6.3	<i>Precision</i>	23
2.6.4	<i>Recall</i>	23
2.6.5	<i>F-Score</i>	24
BAB III MODEL DAN PERANCANGAN SISTEM.....		25
3.1	Rancangan Sistem.....	25
3.2	<i>Flowchart</i> Sistem.....	26
3.3	Rancangan <i>Nodes Feature Selection</i>	27
3.3.1	Diagram Blok <i>Nodes Feature Selection</i>	27
3.3.2	<i>Flowchart Nodes Feature Selection</i>	29
3.4	Rancangan <i>Node Fuzzy</i>	30
3.4.1	Diagram Blok <i>Node Fuzzy Logic</i>	30
3.4.2	<i>Flowchart Node Fuzzy</i>	31

3.5	Sarana Penunjang Penelitian.....	33
3.5.1	Spesifikasi Perangkat Keras	33
3.5.2	Spesifikasi Perangkat Lunak	33
3.6	Skenario Pengujian	34
BAB IV HASIL DAN ANALISIS SISTEM.....		36
4.1	<i>Quality of Service (QoS)</i> Jaringan	36
4.1.1	<i>Data Rate</i>	36
4.1.2	<i>Throughput</i>	37
4.2	<i>Membership Function (MF)</i> Algoritma <i>Fuzzy Logic</i>	38
4.2.1	<i>Subscribe Message Ratio (SMR)</i>	38
4.2.2	<i>Subscribe Acknowledgment Message Ratio (SAMR)</i>	40
4.2.3	<i>Output Fuzzy</i>	41
4.3	Kinerja Algoritma <i>Fuzzy Logic</i>	42
4.3.1	<i>False Positive Ratio (FPR)</i>	43
4.3.2	<i>Accuracy</i>	44
4.3.3	<i>Precision</i>	44
4.3.4	<i>Recall</i>	45
4.3.5	<i>F-Score</i>	45
4.3.6	Analisis Algoritma <i>Fuzzy Logic</i>	46
BAB V KESIMPULAN DAN SARAN		48
5.1	Kesimpulan.....	48
5.2	Saran	49
DAFTAR PUSTAKA		50
LAMPIRAN.....		54
A.	Lampiran Tabel <i>Quality of Service</i>	54

B.	Lampiran Tabel <i>SMR</i> dan <i>SAMR</i>	55
C.	Lampiran Tabel Kinerja Algoritma <i>Fuzzy Logic</i>	56
D.	Lampiran Program <i>Fuzzy</i>	57
E.	Lampiran <i>Screenshot</i> Pengujian pada <i>COOJA</i>	60