LIST OF FIGURES

Figure	Description	Page
1.1	block diagram of the system	3
2.1	APLC	5
2.2	Central processing unit	8
2.3	Ladder diagram	12
2.4	normally open contact (N.O)	13
2.5	normally closed contact (N.C)	14
2.6	Energies coil	15
2.7	Box represents function	15
2.8	Statement list example	16
2.9	Function block diagram example	18
2.10	ON-Delay Timers	20

2.11 Retentive ON-Delay (TONR) 21

2.12 OFF-Delay Timer (TOF) 21

2.13 Figures up Counter (C U P) 22

2.14 Down Counter (CTD) 23

2.15 UP/ Down Counter (C T U D) 24

2.16 Programming unit 25

2.17 PLC Operation 26

3.1 Entities of GSM system 30

3.2 GSM Phases 31

3.3 System Model 33

3.4 Structure of GSM Net work 38

3.5 A possible Cell Configuration 41

3.6 Figure Structure of the IMSI 42

3.7 structure of the MSISDN
43

3.8 Structure of the LAI and CAI
43

3.9 Structure of the BSIC
44

3.10 Structure of the IMEI
45

3.11 The Synchronization of TDMA Frames
46

3.12 Simple DTMF network
52

3.13 DTMF connection
52

4.1 ADTMF Key pad from AUTOVON telephone
58

4.2 MT8870 DTMF decoder
59

4.3 1209HZ on 697 HZ to make the 1Tone
60

4.4 Photos of DTMF Circuit built
63

4.5 Block diagram of the system
65

5.1 Circuit Program by ladder logic
68

5.2 Circuit program by statement list
70