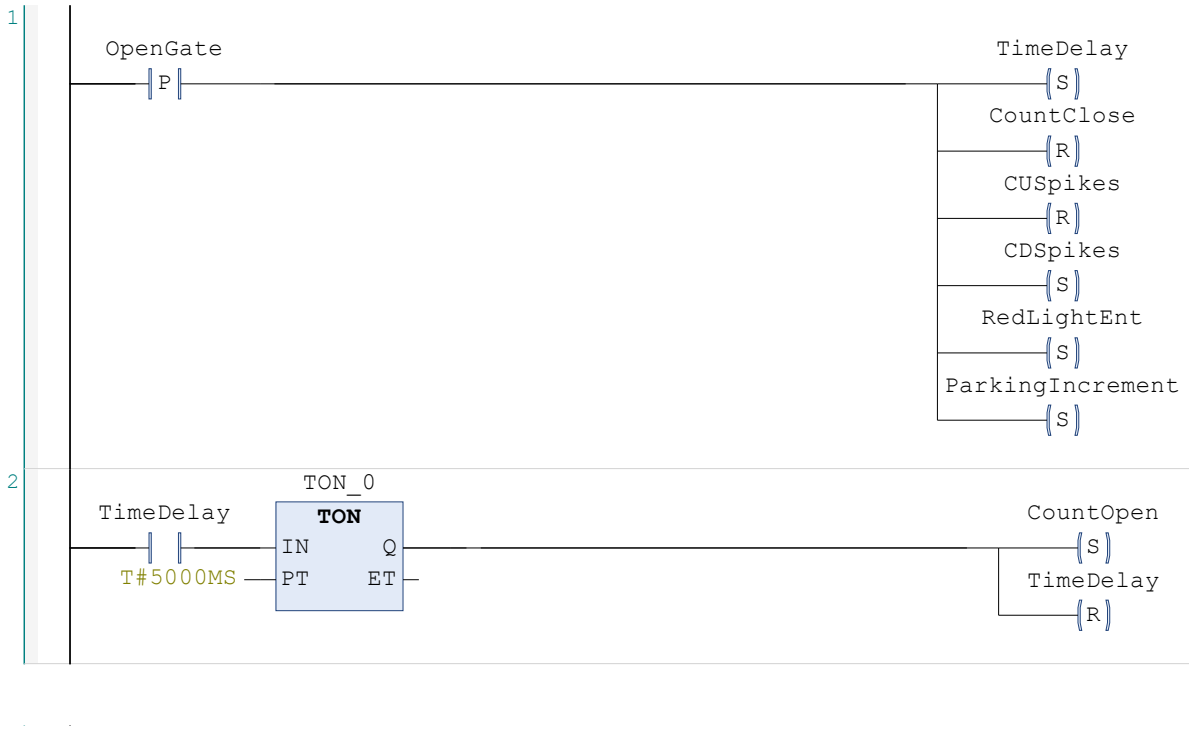
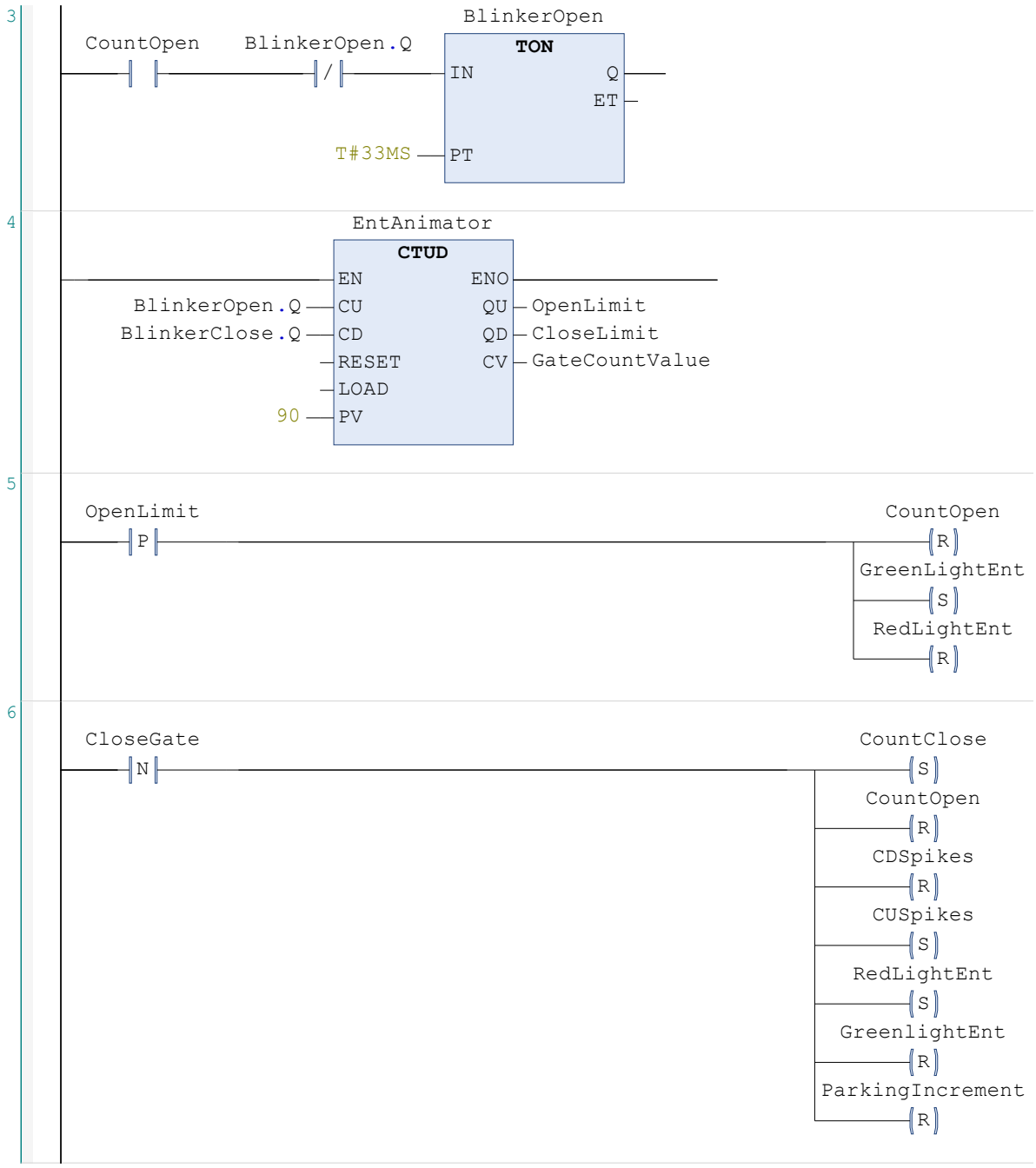
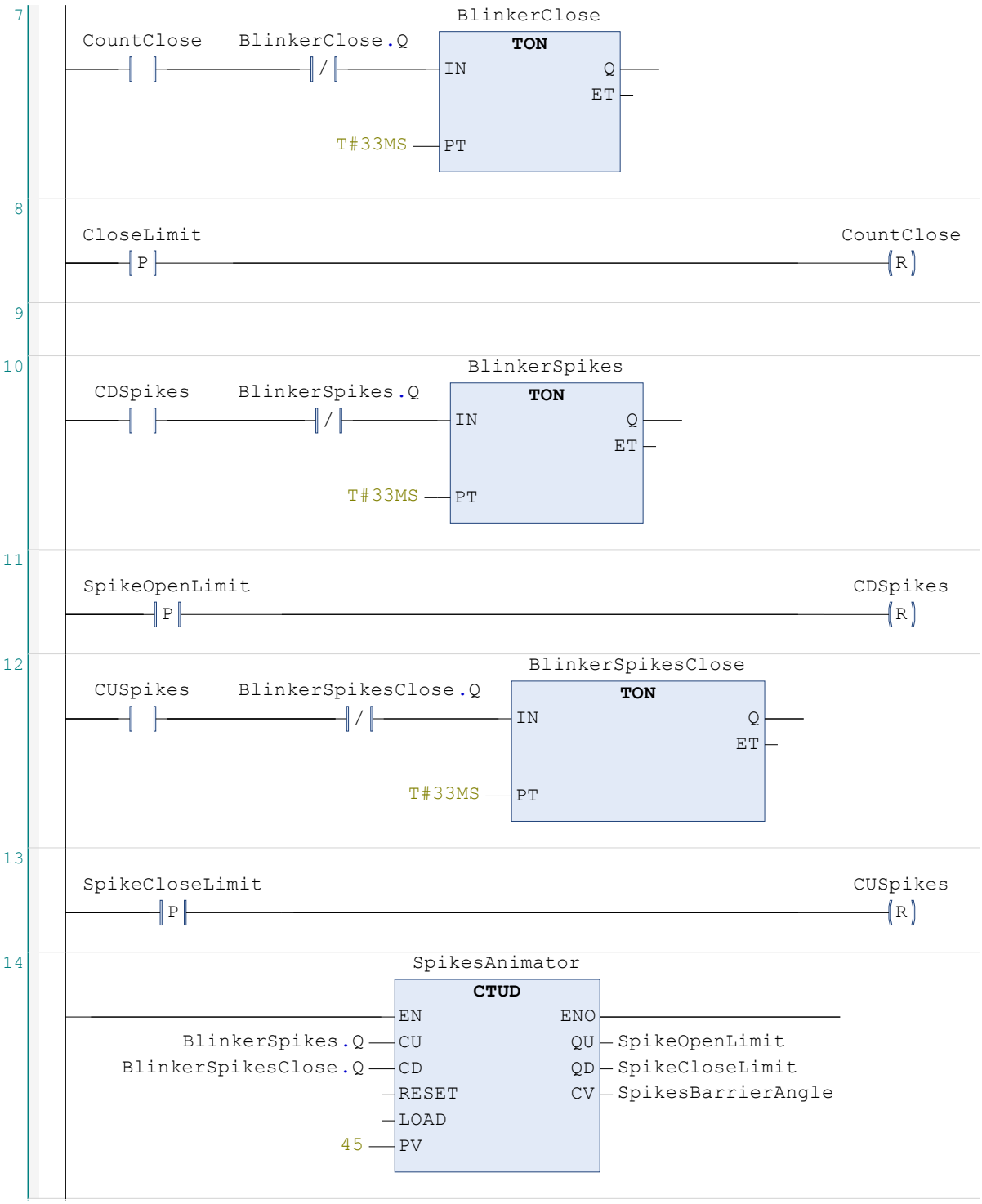
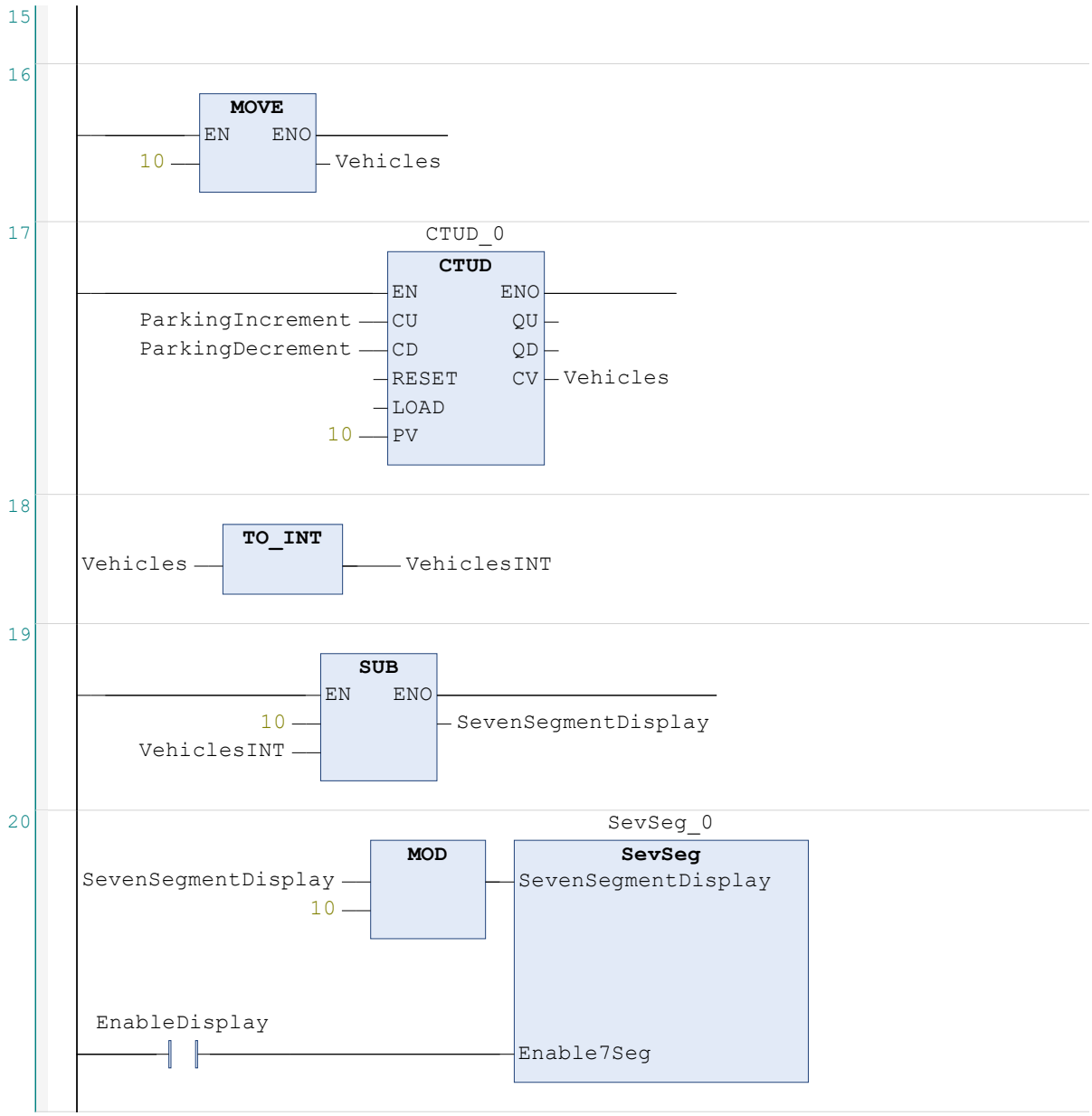
```
1   PROGRAM PLC_PRG
2   VAR
3       OpenGate : BOOL ;           //ENTRANCE sensor, this contact detects vehicle
    wanting to enter
4       RedLightEnt : BOOL ;        //ENTRANCE stop light, this coil controls the
    Red light at the
5       GreenLightEnt : BOOL ;  //ENTRANCE go light, this coil controls the Green
    light at the
6       TimeDelay : BOOL ;      //ENTRANCE, this coil begins the timer which delays
    the open signal for the entrance gate
7       TON_0 : TON ;               //ENTRANCE , the timer to control the entrance
    gate
8       EntAnimator : CTUD ;        //ENTRANCE CTUD to control motor precisely
9       CountOpen : BOOL ;      //ENTRANCE coil to start motor - opens gate.
10      CloseGate : BOOL ;      //ENTRANCE sensor, this contact detects vehicle has
    entered and it is now safe to close the gate
11      CountClose : BOOL ;     //ENTRANCE coil to start motor - close gate.
12      BlinkerOpen : TON ;     //ENTRANCE timer to control CTUD open signal - Count
     up
13      BlinkerClose : TON ;        //ENTRANCE Timer to control CTUD close signal -
    Count down
14      GateCountValue : WORD ; //ENTRANCE
15      CloseLimit : BOOL ;     //ENTRANCE coil to detect gate is done closing
16      OpenLimit : BOOL ;      //ENTRANCE coil to detect gate is done opening
17      OpenExGate : BOOL ;         //EXIT sensor, this contact detects vehicle
    wanting to exit
18      CountExOpen : BOOL ;            //EXIT coil to start motor - opens gate.
19      CountExClose : BOOL ;           //EXIT coil to start motor - close gate.
20      CloseExGate : BOOL ;            //EXIT sensor, this contact detects vehicle
    has exited and it is now safe to close the gate
21      BlinkerExOpen : TON ;           //EXIT timer to control CTUD open signal -
    Count up
22      BlinkerExClose : TON ;      //EXIT Timer to control CTUD close signal -
    Count down
23      OpenExLimit : BOOL ;            //EXIT coil to detect gate is done opening
24      CloseExLimit : BOOL ;           //EXIT coil to detect gate is done closing
25      ExGateCountValue : WORD ;       //EXIT
26      ExtAnimator : CTUD ;            //EXIT CTUD to control motor precisely
27      RedLightEx : BOOL ;         //EXIT stop light, this coil controls the Red
    light
28      GreenLightEx : BOOL ;           //EXIT go light, this coil controls the
    Green light
29      SpikesAnimator : CTUD ;         //Spikes Barrier CTUD to control the spikes
    motor precisely
30      SpikesBarrierAngle : WORD ;     //Spikes Barrier
31      SpikeOpenLimit : BOOL ;         //Spikes Barrier coil to detect spikes is
    done deploying
32      SpikeCloseLimit : BOOL ;            //Spikes Barrier coil to detect spikes
    is done retracting
33      CDSpikes : BOOL ;                   //Spikes Barrier coil to start motor -
    retract barrier
34      BlinkerSpikes : TON ;               //Spikes Barrier timer to control the
```

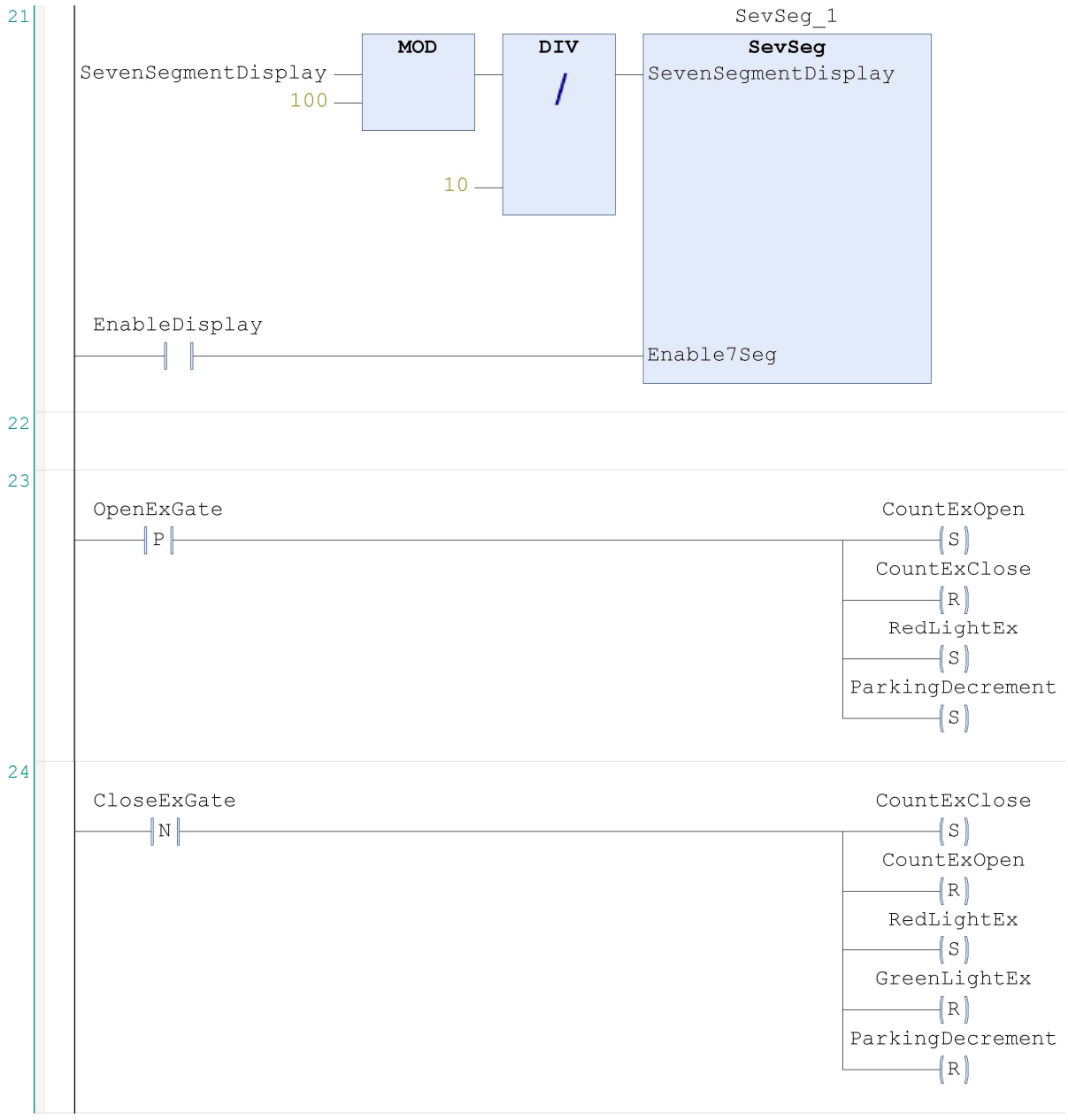
```
        CTUD retract signal - Count down
35          CUSpikes : BOOL ;                    //Spikes Barrier coil to start motor -
        deploy barrier
36          BlinkerSpikesClose : TON ;       //Spikes Barrier timer to control the CTUD
        deploy signal - Count down
37          CTUD_0 : CTUD ;              //ParkingVariable CTUD to track the number of
        vehicles that have entered and exited
38          ParkingIncrement : BOOL ;        //ParkingVariable coil to increment number
        of vehicles present in the parking
39          ParkingDecrement : BOOL ;        //ParkingVariable coil to decrement number
        of vehicles present in the parking
40          Vehicles : WORD  ;           //ParkingVariable number of vehicles present in
        parking stored in word form.
41          VehiclesINT : INT ;          //ParkingVariable integer variable to store
        number of vehicles present.
42          SevenSegmentDisplay : INT ;      //SevSeg integer variable to store the
        difference between parking available and vehicles present
43          SevSeg_0 : SevSeg ;              //SevSeg instance of 7 segement display from
         function block created
44          EnableDisplay : BOOL ;           //SevSeg enable coil for the 7 segment
        display
45          SevSeg_1 : SevSeg ;              //SevSeg instance of 7 segement display from
         function block created
46      END_VAR
47
```

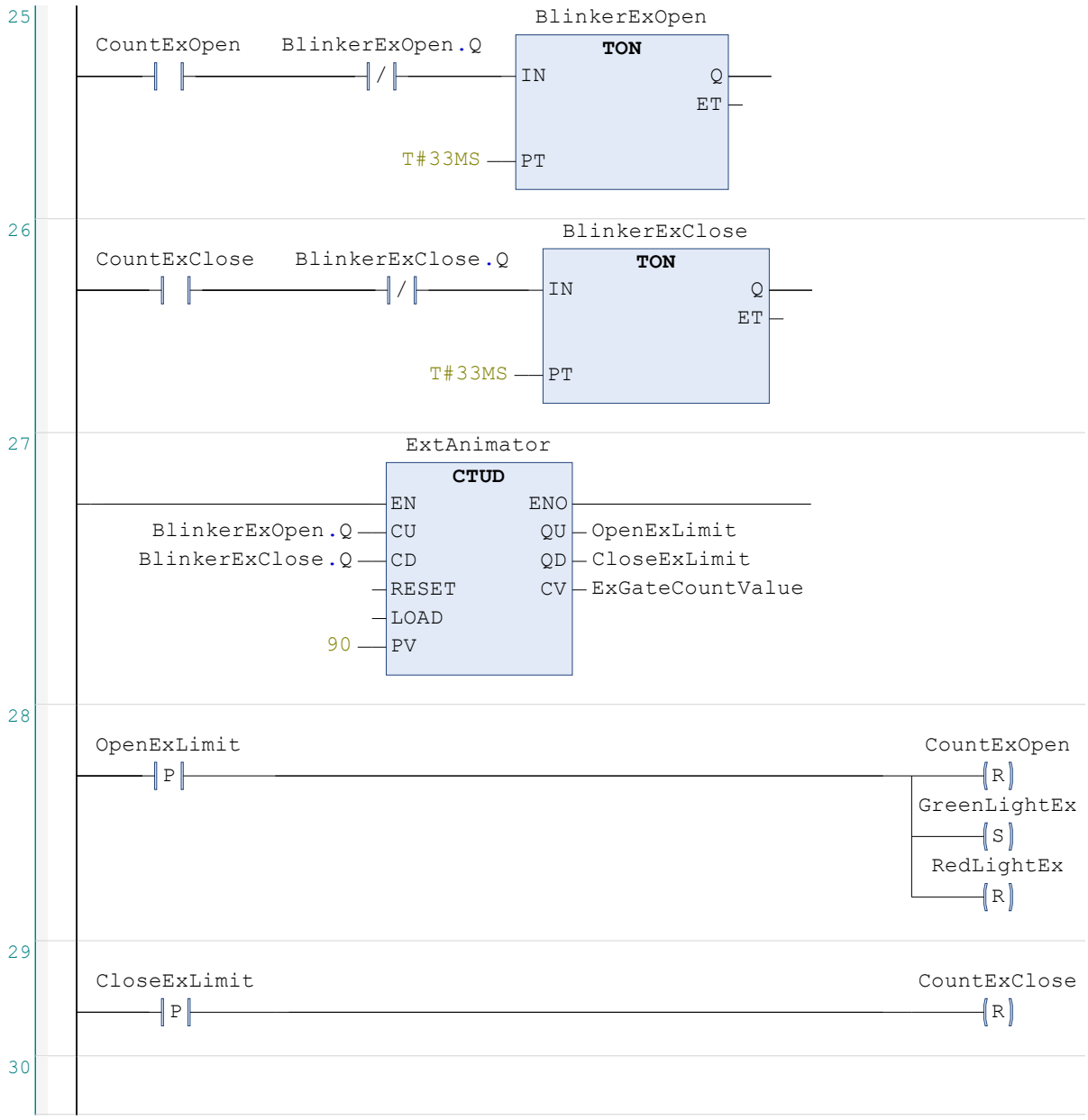



3
CountOpen
BlinkerOpen.Q
BlinkerOpen
TON
IN
Q
ET
T#33MS
PT
4
EntAnimator
CTUD
EN
ENO
BlinkerOpen.Q
CU
QU
OpenLimit
BlinkerClose.Q
CD
QD
CloseLimit
RESET
CV
GateCountValue
LOAD
90
PV
5
OpenLimit
P
CountOpen
R
GreenLightEnt
S
RedLightEnt
R
6
CloseGate
N
CountClose
S
CountOpen
R
CDSpikes
R
CUSpikes
S
RedLightEnt
S
GreenlightEnt
R
ParkingIncrement
R


7
BlinkerClose
CountClose
BlinkerClose.Q
TON
IN
Q
ET
T#33MS
PT
8
CloseLimit
P
CountClose
R
9
10
BlinkerSpikes
CDSpikes
BlinkerSpikes.Q
TON
IN
Q
ET
T#33MS
PT
11
SpikeOpenLimit
P
CDSpikes
R
12
BlinkerSpikesClose
CUSpikes
BlinkerSpikesClose.Q
TON
IN
Q
ET
T#33MS
PT
13
SpikeCloseLimit
P
CUSpikes
R
14
SpikesAnimator
CTUD
EN
ENO
BlinkerSpikes.Q
CU
QU
SpikeOpenLimit
BlinkerSpikesClose.Q
CD
QD
SpikeCloseLimit
RESET
CV
SpikesBarrierAngle
LOAD
45
PV


15
16
MOVE
EN
ENO
10
Vehicles
17
CTUD_0
CTUD
EN
ENO
ParkingIncrement
CU
QU
ParkingDecrement
CD
QD
RESET
CV
Vehicles
LOAD
10
PV
18
TO_INT
Vehicles
VehiclesINT
19
SUB
EN
ENO
10
SevenSegmentDisplay
VehiclesINT
20
SevSeg_0
MOD
SevSeg
SevenSegmentDisplay
SevenSegmentDisplay
10
EnableDisplay
Enable7Seg


21
SevSeg_1
MOD
DIV
SevSeg
SevenSegmentDisplay
100
10
SevenSegmentDisplay
EnableDisplay
Enable7Seg
22
23
OpenExGate
P
CountExOpen
S
CountExClose
R
RedLightEx
S
ParkingDecrement
S
24
CloseExGate
N
CountExClose
S
CountExOpen
R
RedLightEx
S
GreenLightEx
R
ParkingDecrement
R


25
CountExOpen
BlinkerExOpen.Q
BlinkerExOpen
TON
IN
Q
ET
T#33MS
PT
26
CountExClose
BlinkerExClose.Q
BlinkerExClose
TON
IN
Q
ET
T#33MS
PT
27
ExtAnimator
CTUD
EN
ENO
BlinkerExOpen.Q
CU
QU
OpenExLimit
BlinkerExClose.Q
CD
QD
CloseExLimit
RESET
CV
ExGateCountValue
LOAD
90
PV
28
OpenExLimit
P
CountExOpen
R
GreenLightEx
S
RedLightEx
R
29
CloseExLimit
P
CountExClose
R
30