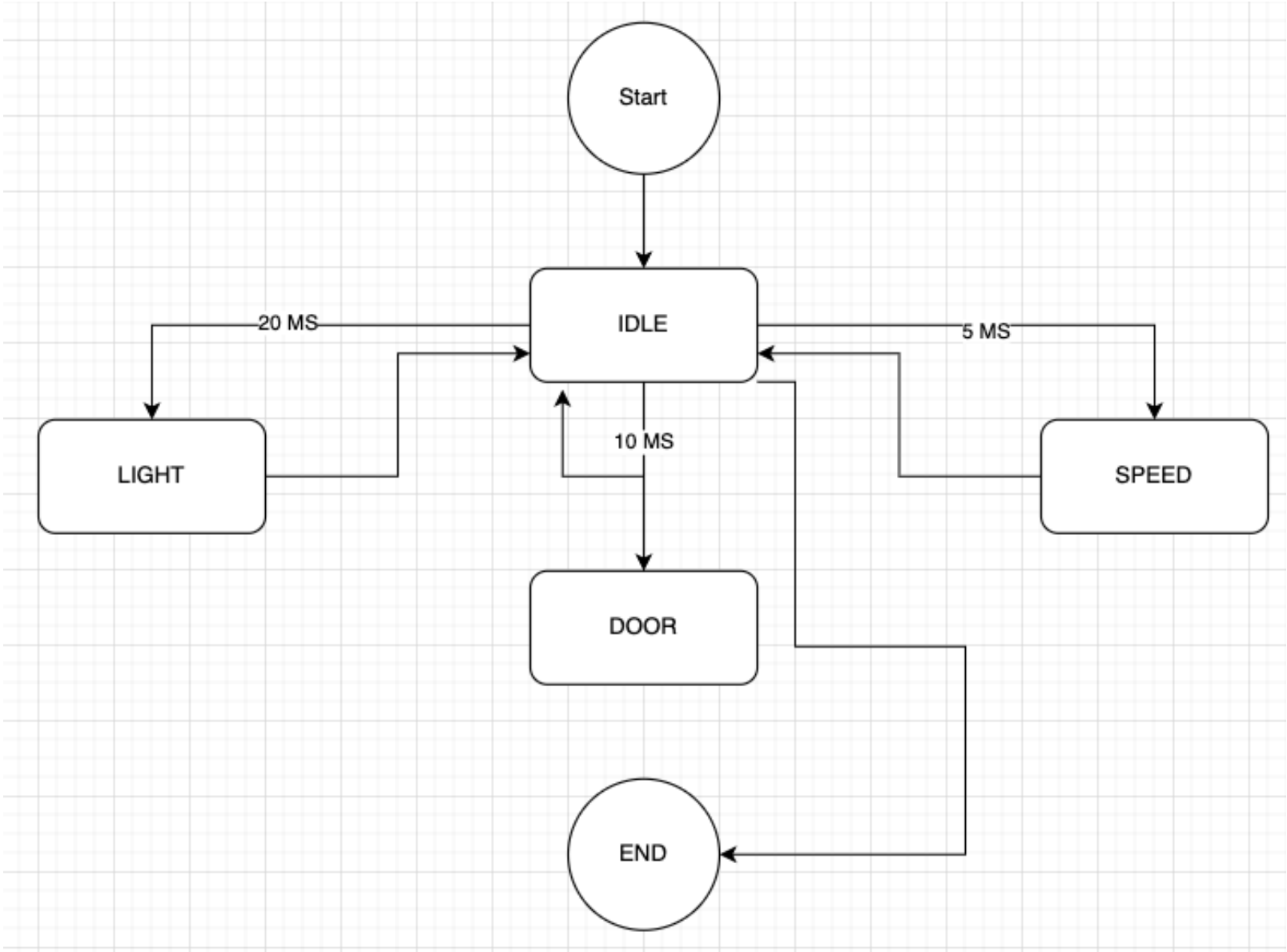
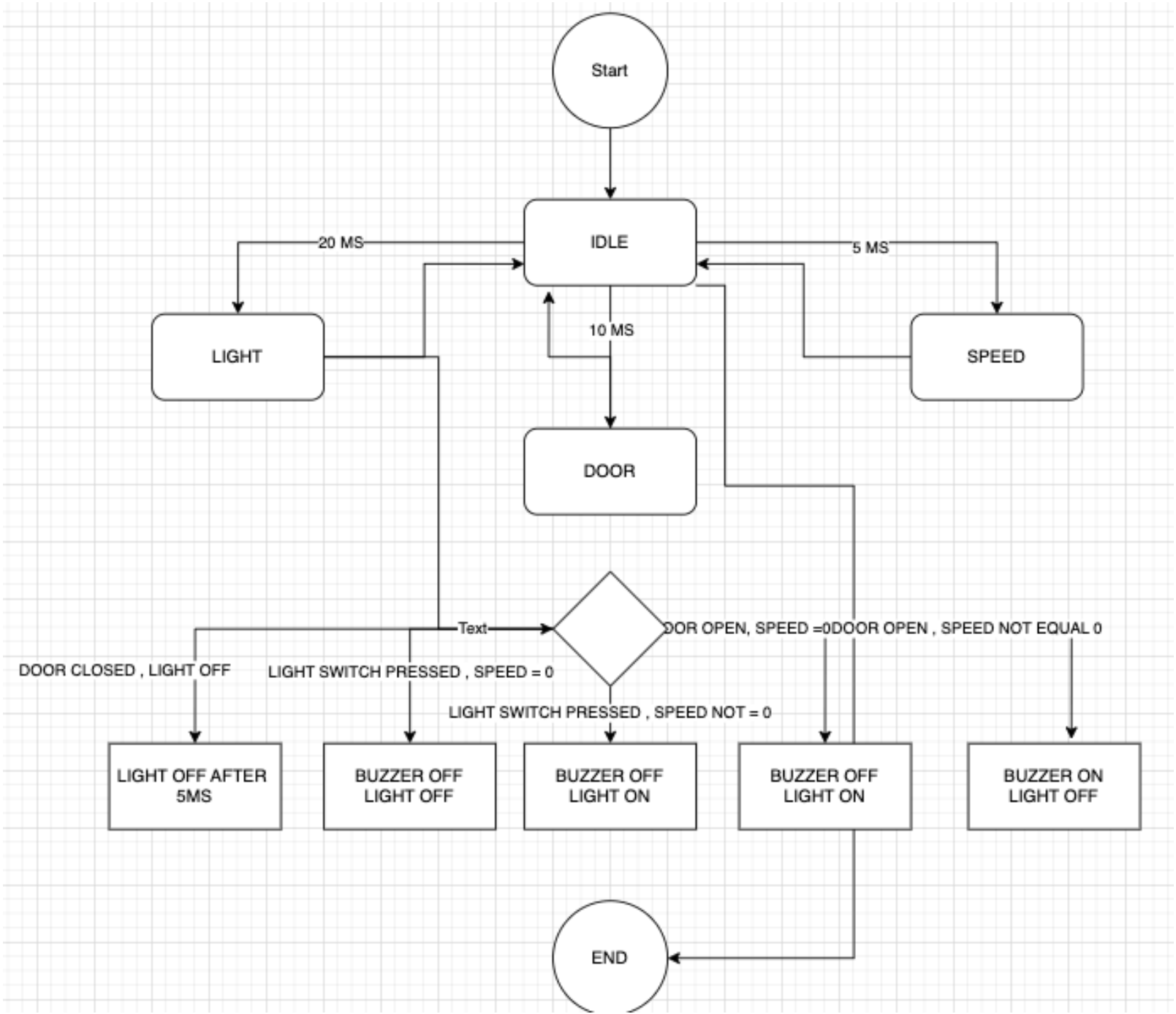
Automotive Door Control System Design

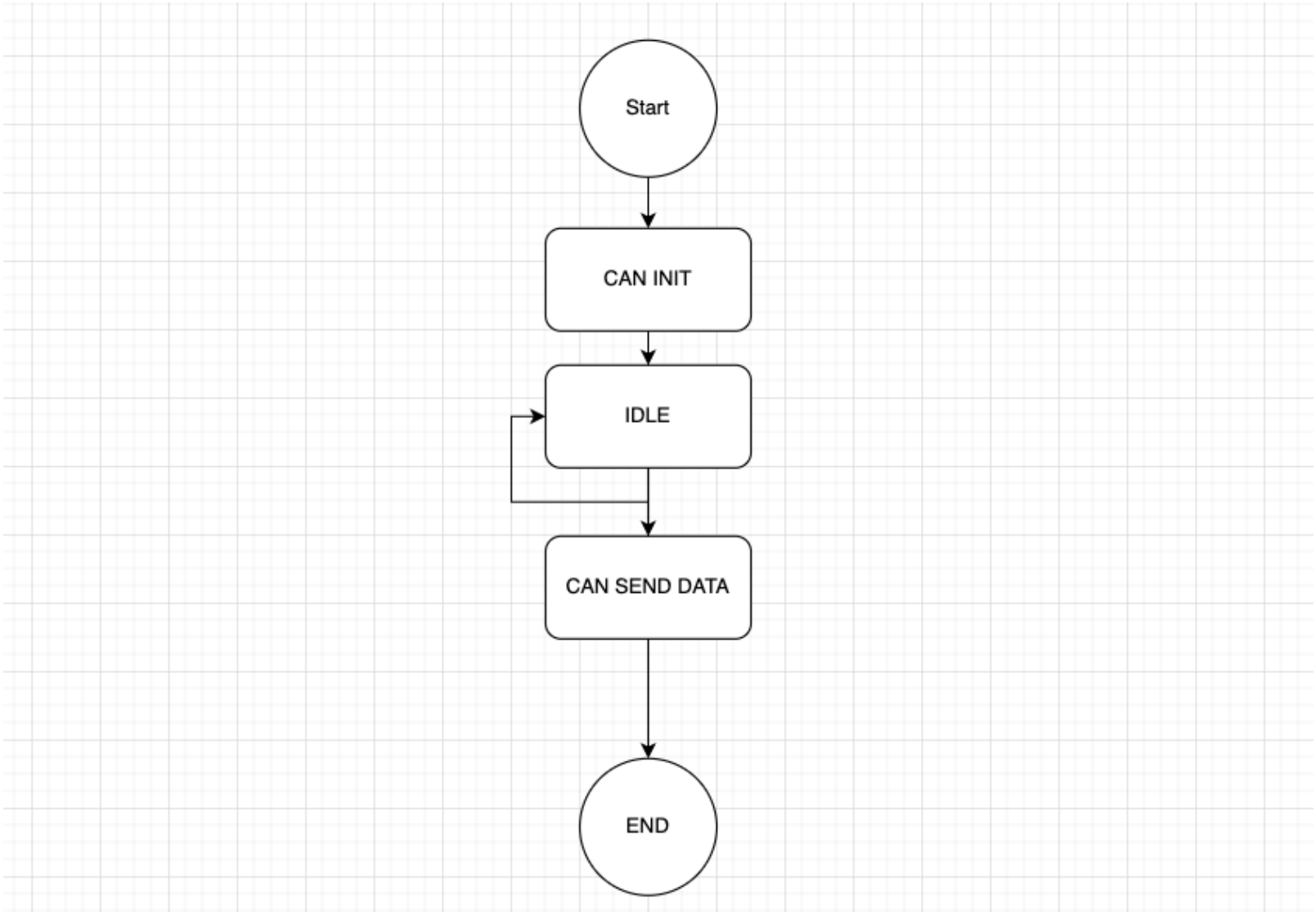
Ziad Ayman Emara
ziad_ayman1999@icloud.com

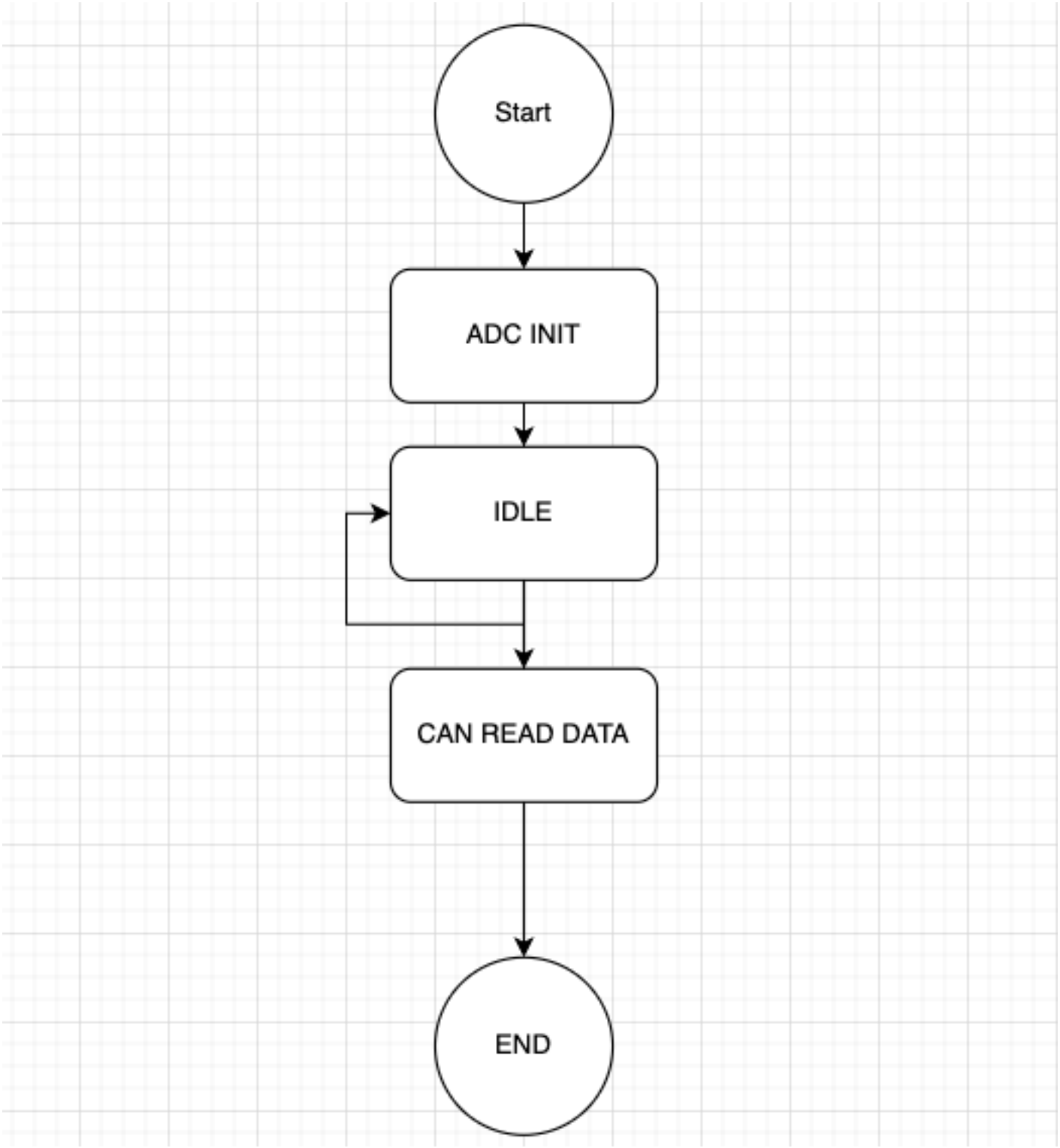
DYNAMIC DESIGN

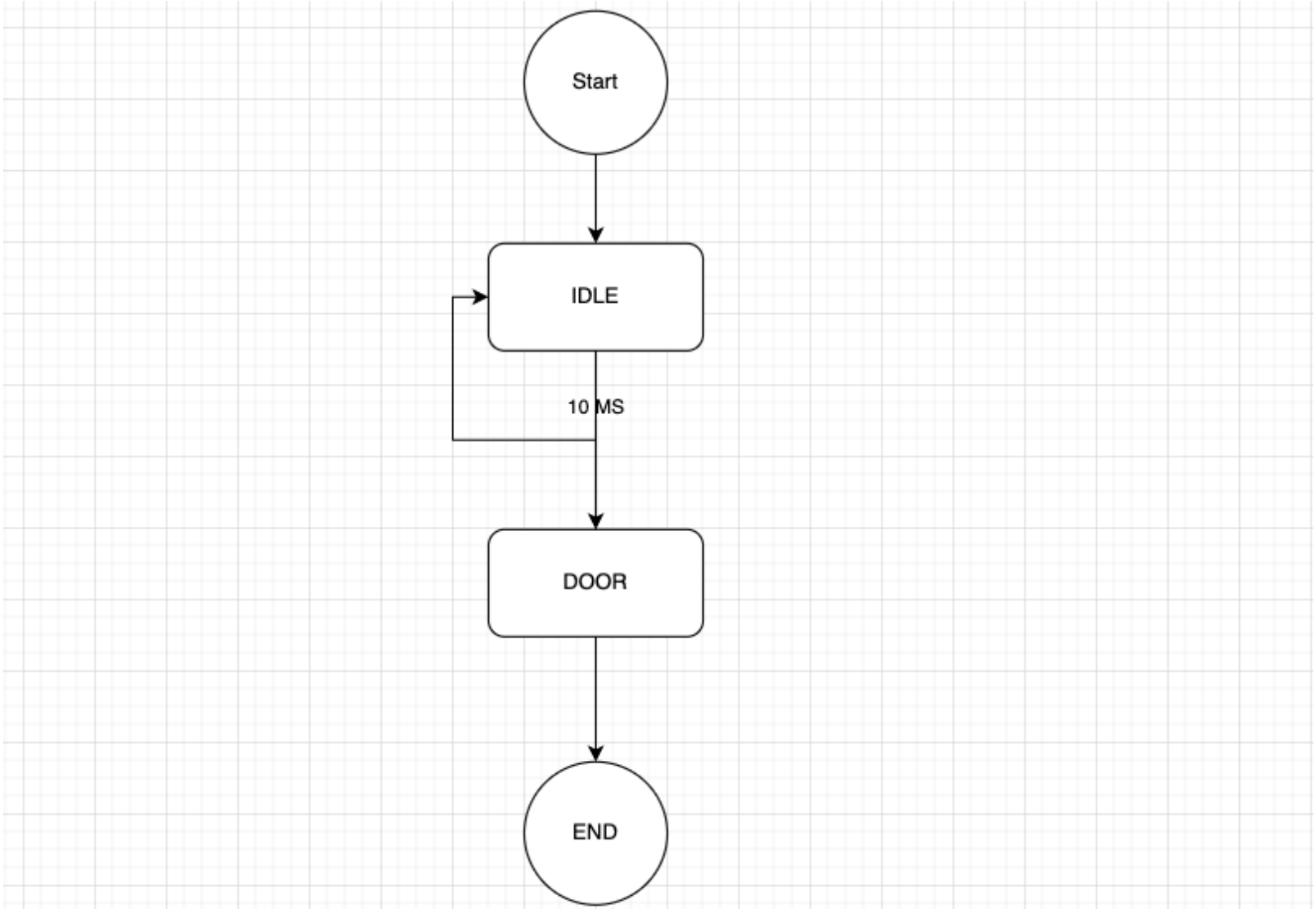
ECU1 :

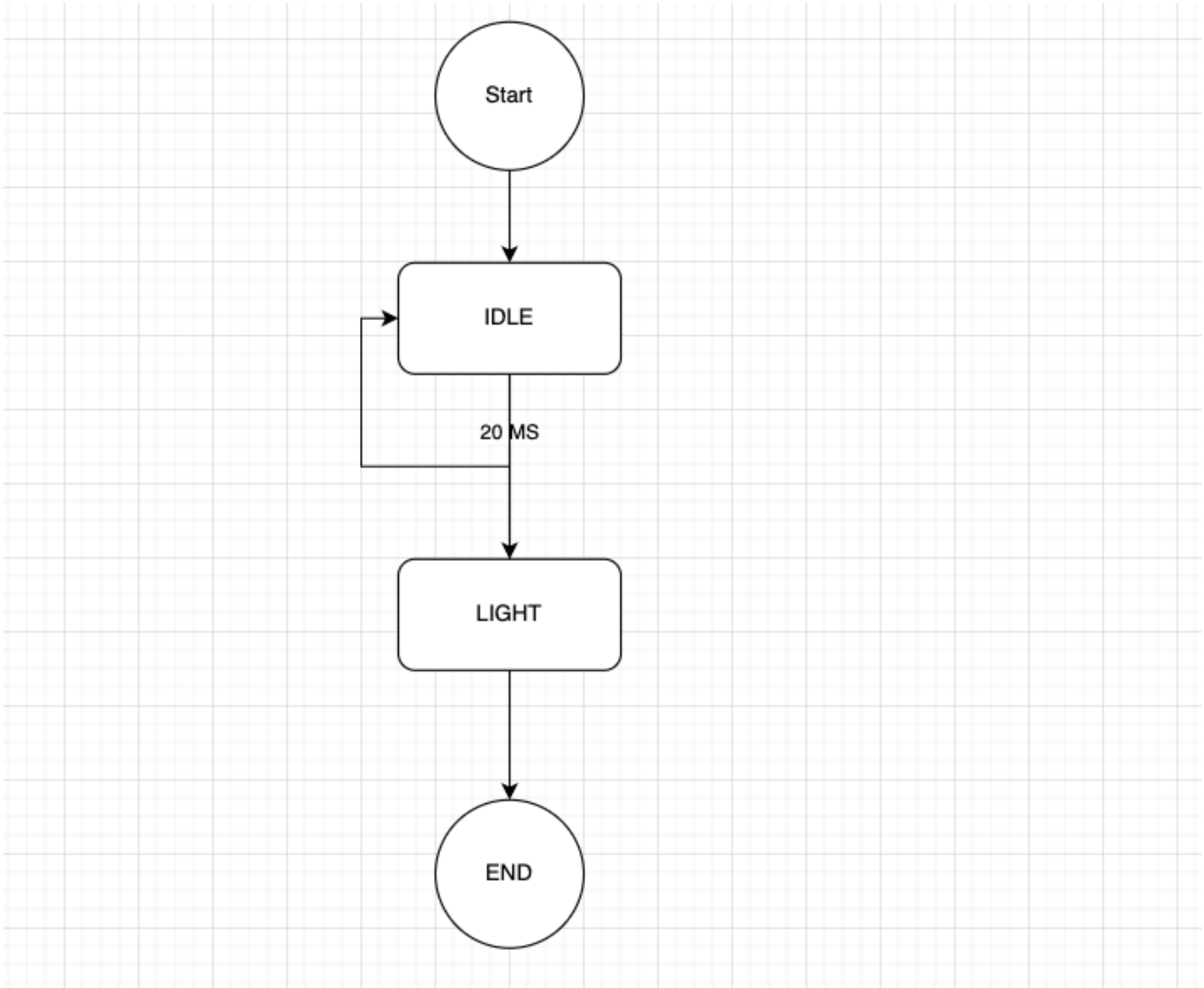


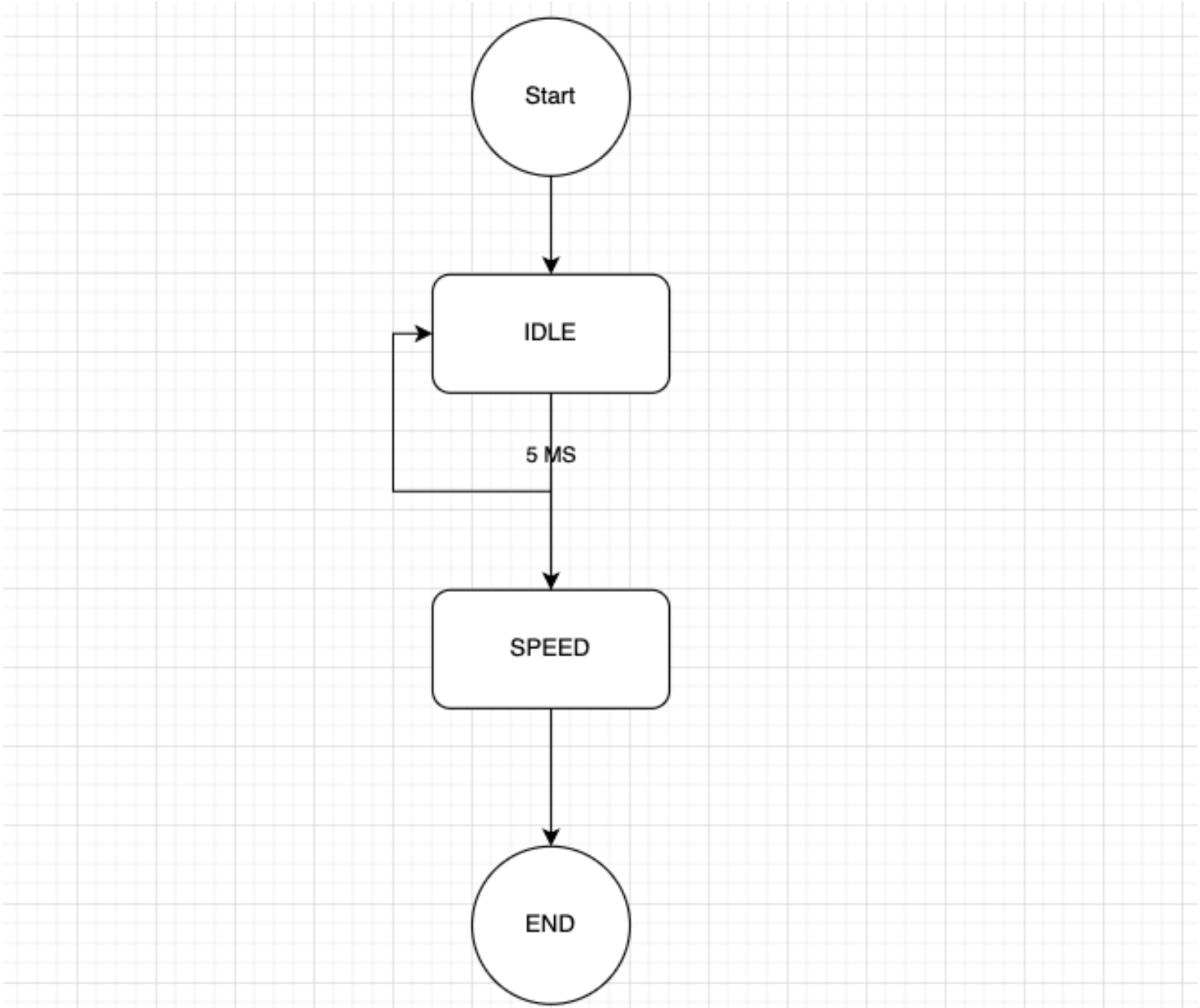

Start
IDLE
20 MS
5 MS
LIGHT
10 MS
SPEED
DOOR
Text
DOOR CLOSED , LIGHT OFF
LIGHT SWITCH PRESSED , SPEED = 0
LIGHT SWITCH PRESSED , SPEED NOT = 0
OOR OPEN, SPEED =0
DOOR OPEN , SPEED NOT EQUAL 0
LIGHT OFF AFTER 5MS
BUZZER OFF LIGHT OFF
BUZZER OFF LIGHT ON
BUZZER OFF LIGHT ON
BUZZER ON LIGHT OFF
END


Start
CAN INIT
IDLE
CAN SEND DATA
END

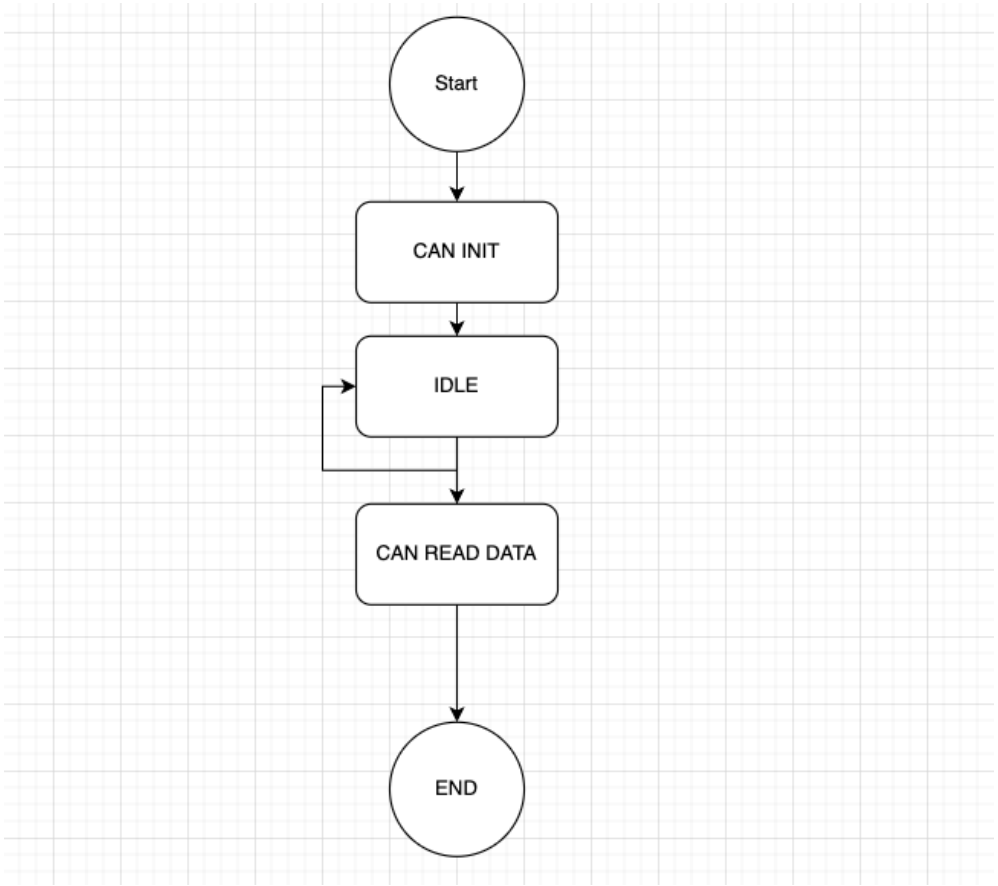

Start
ADC INIT
IDLE
CAN READ DATA
END

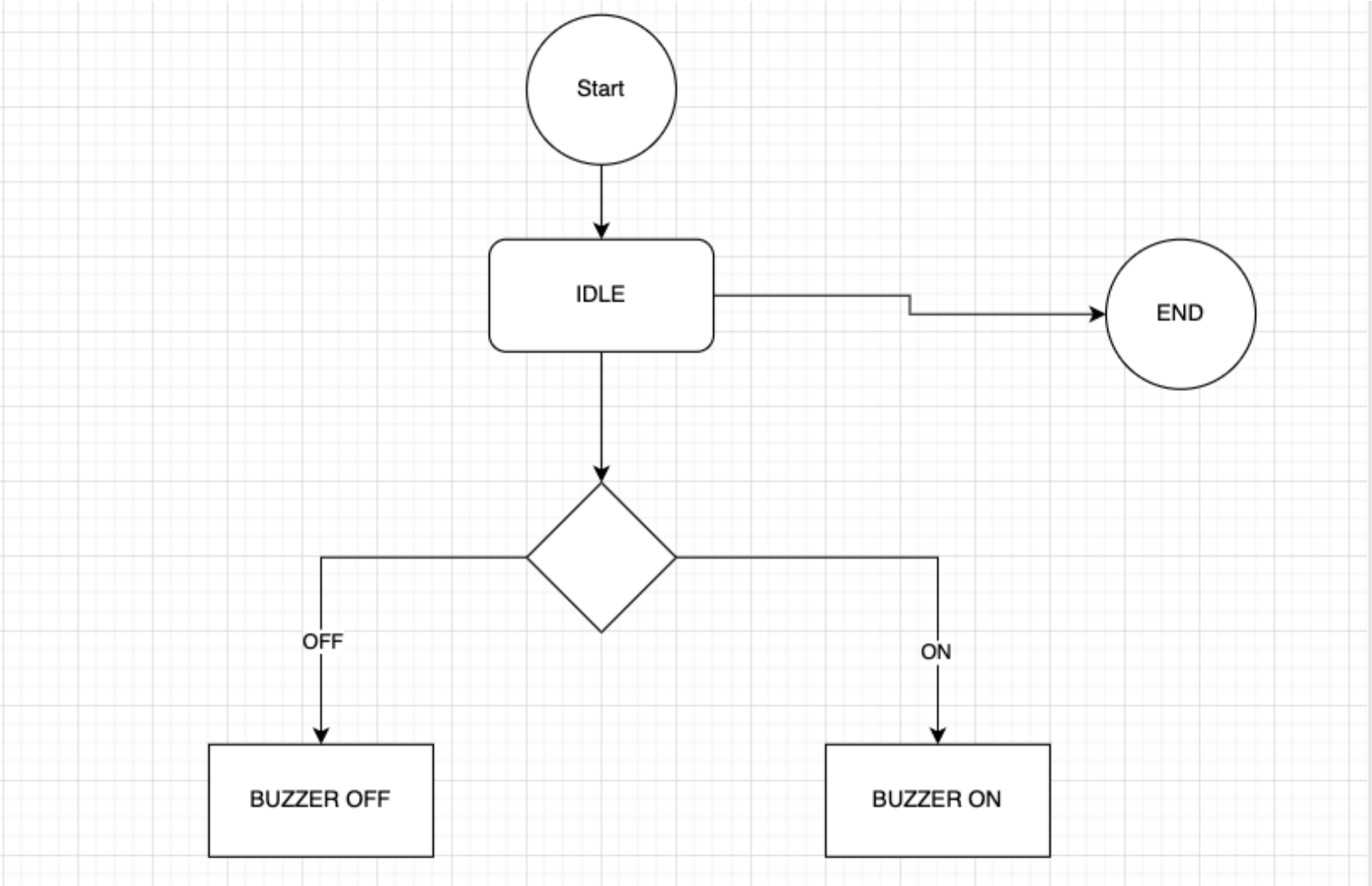

Start
IDLE
10 MS
DOOR
END

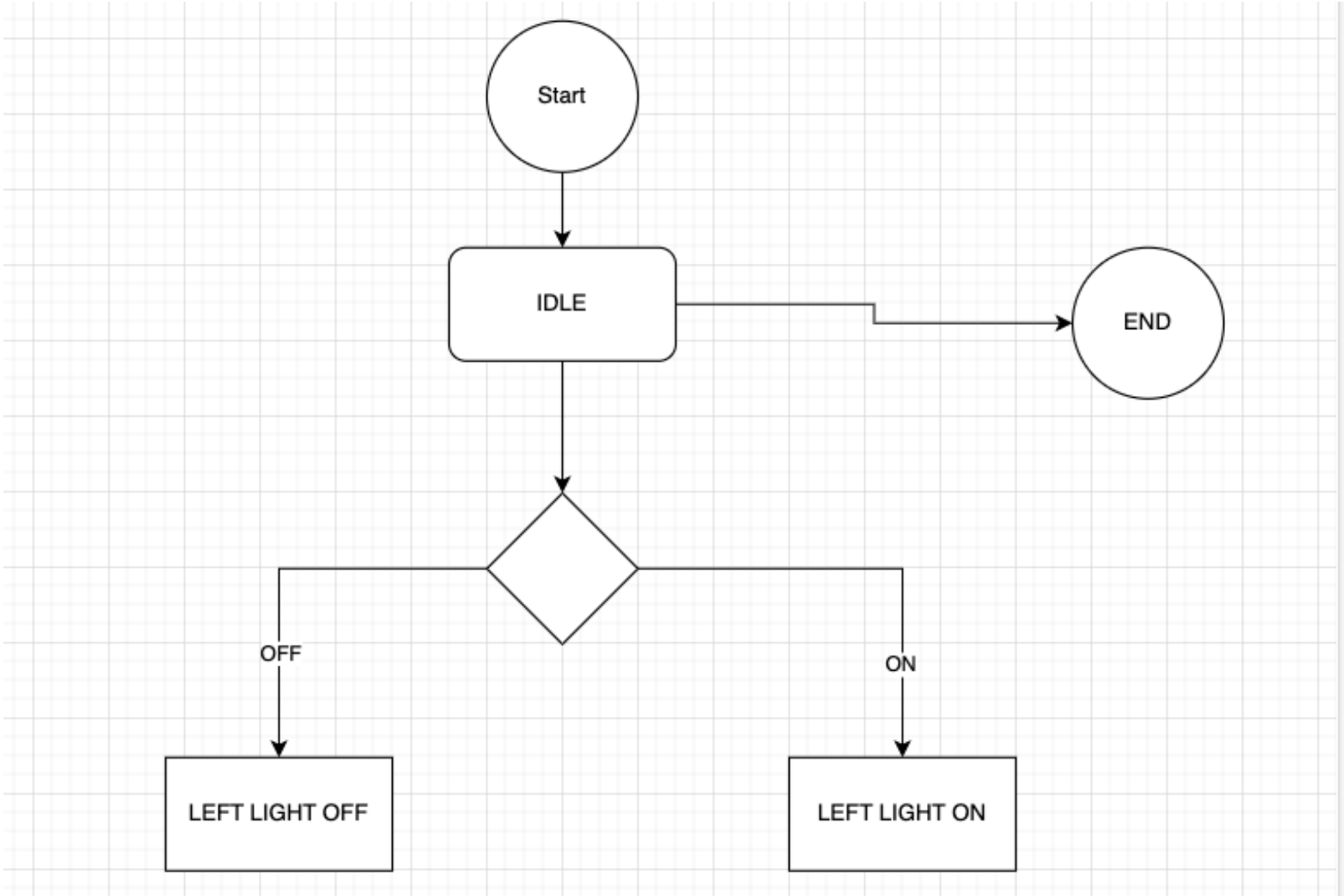

Start
IDLE
20 MS
LIGHT
END

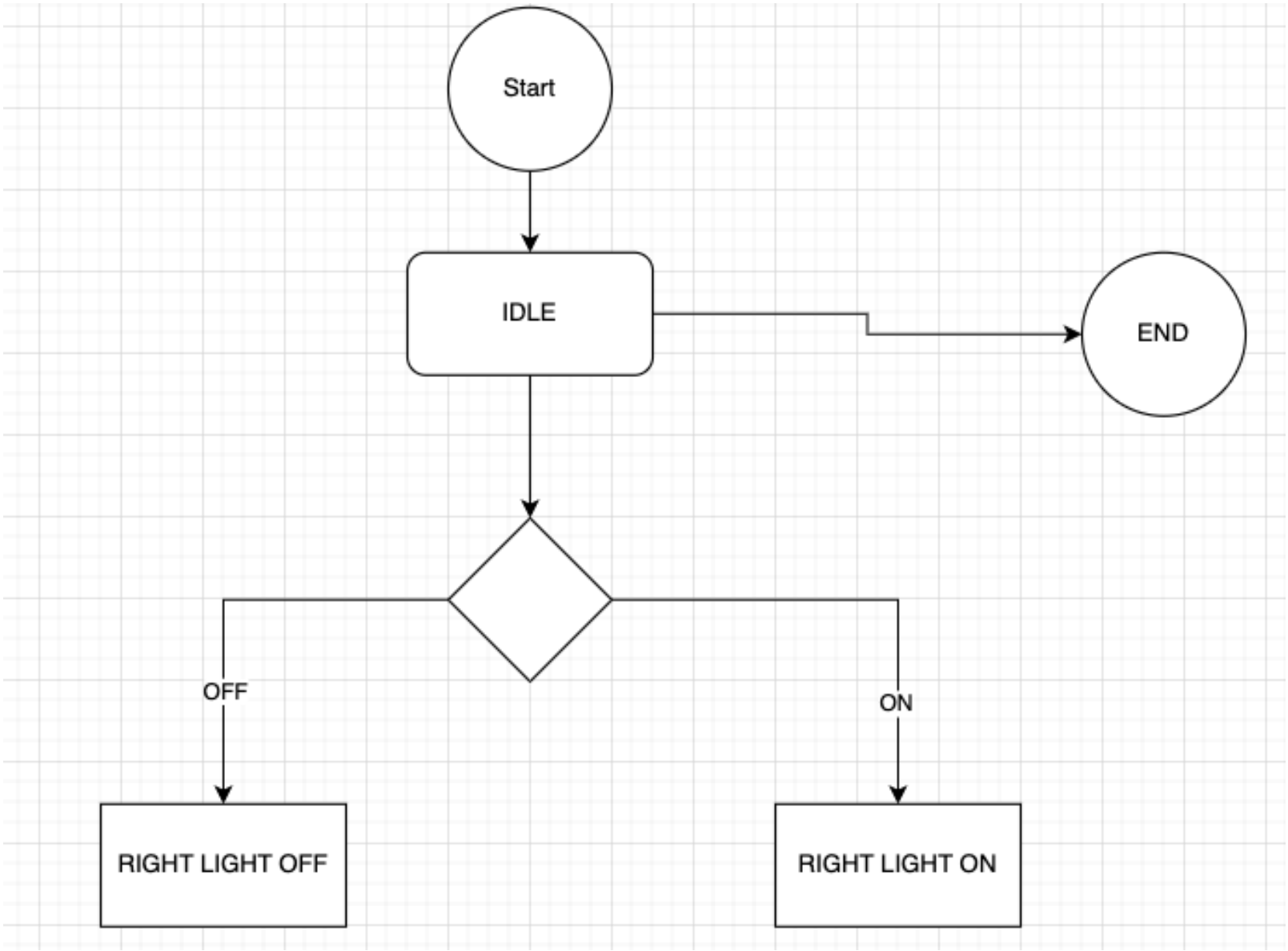

Start
IDLE
5 MS
SPEED
END

ECU2:

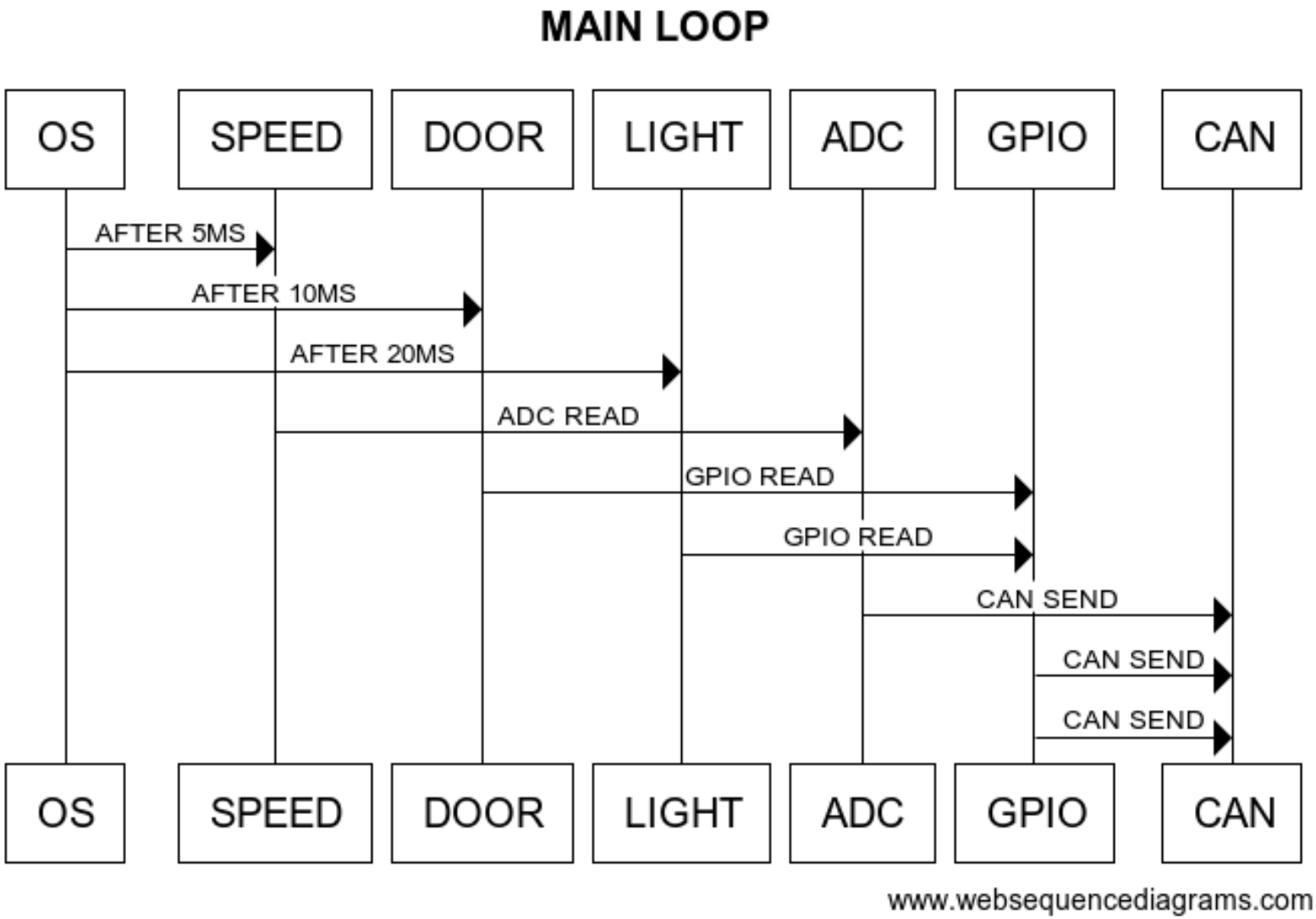



Start
IDLE
END
OFF
ON
BUZZER OFF
BUZZER ON


Start
IDLE
END
OFF
ON
LEFT LIGHT OFF
LEFT LIGHT ON


Start
IDLE
END
OFF
ON
RIGHT LIGHT OFF
RIGHT LIGHT ON

ECU1:


MAIN LOOP
OS
SPEED
DOOR
LIGHT
ADC
GPIO
CAN
AFTER 5MS
AFTER 10MS
AFTER 20MS
ADC READ
GPIO READ
GPIO READ
CAN SEND
CAN SEND
CAN SEND
OS
SPEED
DOOR
LIGHT
ADC
GPIO
CAN
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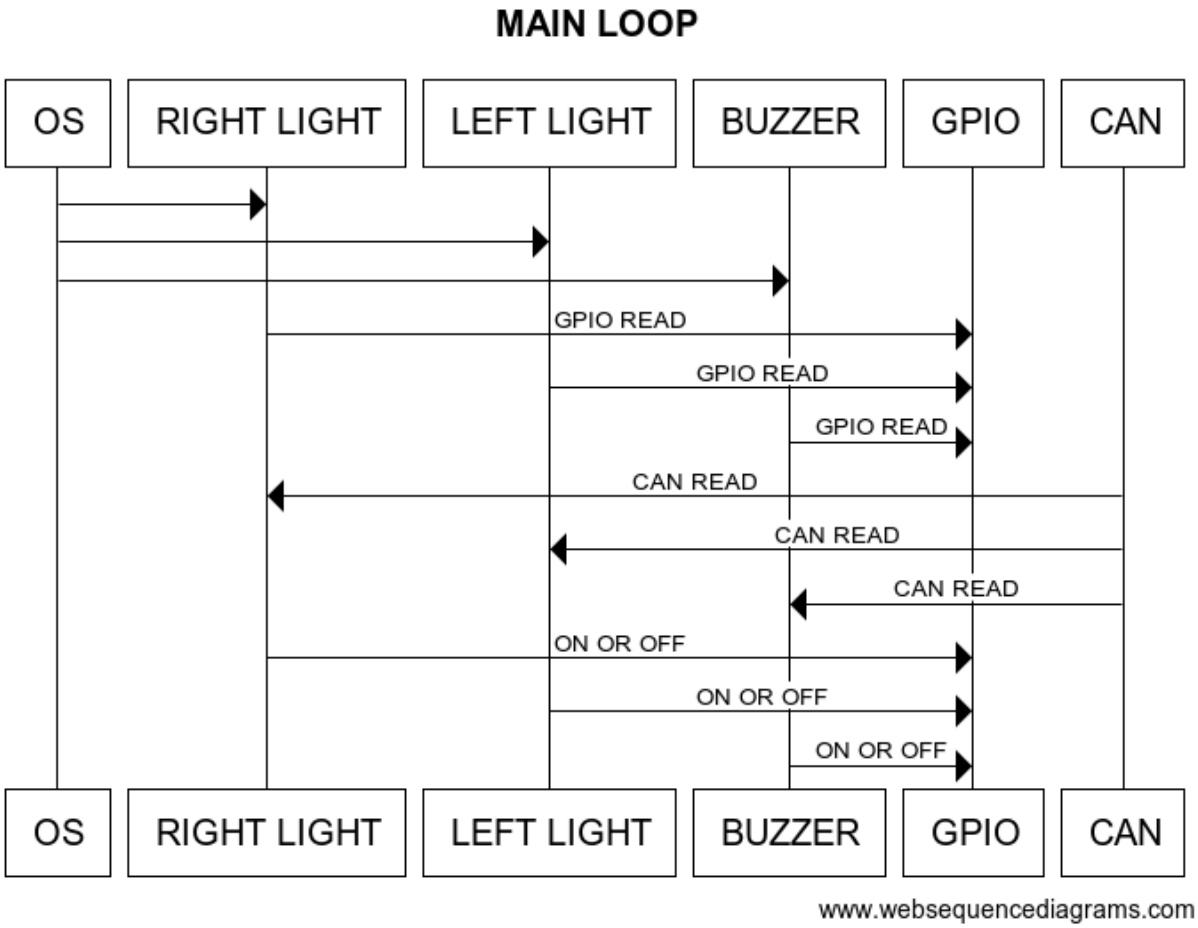
ECU2:


MAIN LOOP
OS
RIGHT LIGHT
LEFT LIGHT
BUZZER
GPIO
CAN
GPIO READ
GPIO READ
GPIO READ
CAN READ
CAN READ
CAN READ
ON OR OFF
ON OR OFF
ON OR OFF
OS
RIGHT LIGHT
LEFT LIGHT
BUZZER
GPIO
CAN
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CPU:

LIGHT : 20MS
SPEED : 5MS
DOOR :10MS

TOTAL : 35MS

CPU = 100 - IDLE = 100 - 65 = 35%