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| --- | --- |
| State diagram of FSM design of the robot car | |
| Class: ENGG1100 - J | Group Number: 21 |
|  |  |
|  |  |

NOT(S2=WHITE and S4=BLACK)

S2=WHITE and S4=BLACK

S2=BLACK and

S3=BLACK and

S4=BLACK and

count > 7

S2=BLACK and

S3=BLACK and

S4=BLACK and

count > 7

S2=BLACK and

S3=BLACK and

S4=BLACK and

count > 7

S2=BLACK and

S3=BLACK and

S4=BLACK and

count > 7

S2=BLACK and

S3=BLACK and

S4=BLACK and

count < 8

S2=BLACK and

S3=BLACK and

S4=BLACK and

count < 8

S2=BLACK and

S3=BLACK and

S4=BLACK and

count < 8

S2=BLACK and

S3=BLACK and

S4=BLACK and

count < 8

**S\_999**

If count > -1 and count < 3: CLAMP\_OPEN, LEFT\_POSITION

If count = 3: CLAMP\_OPEN, RIGHT\_POSITION

If count > 3 and count < 7: CLAMP\_OPEN, RIGHT \_POSITION

If count = 7: CLAMP\_OPEN, LEFT\_POSITION

If count = 8 or count = 9: CLAMP\_OPEN, LEFT\_POSITION

If count = 10 or count = 11: CLAMP\_OPEN, RIGHT\_POSITION

time > 0.25 sec

S2=BLACK and S4=WHITE

S2=WHITE and S4=WHITE

NOT(S2=WHITE and S4=WHITE)

NOT(S2=BLACK and S4=WHITE)

count = 12

**S\_202**

If count > -1 and count < 4: TURN LEFT

If count > 3 and count < 8: TURN RIGHT

**S\_201**

MOVE FORWARD (a little bit)

count > -1 and count < 4: If S2=WHITE and S3=WHITE

If S2=WHITE and S3=WHITE and S4=BLACK

count > 3 and count < 8: If S3=WHITE and S4=WHITE

If S2=BLACK and S3=WHITE and S4=WHITE

S2=WHITE and S4=BLACK

NOT(S2=WHITE and S4=BLACK)

S2=BLACK and S4=WHITE

NOT(S2=BLACK and S4=WHITE)

S2=WHITE and S4=WHITE

NOT(S2=WHITE and S4=WHITE)

S1=BLACK

S1=BLACK

S1=BLACK

S1=BLACK

time > 0.5 sec and S1=BLACK

S1=BLACK

count > 7 and time > 0.1 sec

**S\_201**

MOVE FORWARD (a little bit)

**S\_202**

If count > -1 and count < 4: TURN LEFT

If count > 3 and count < 8: TURN RIGHT

time > 0.05 sec and NOT(S5=WHITE and

S7=WHITE)

count > -1 and count < 4: S5=BLACK and S6=BLACK and S7=BLACK

count > 3 and count < 8: S5=BLACK and S6=BLACK and S7=BLACK

count > 7: S5=BLACK and S6=BLACK and S7=BLACK

count > -1 and count < 4: S5=WHITE and S7=BLACK

count > 3 and count < 8: S5=WHITE and S6=WHITE and S7=WHITE

S5=WHITE and S7=BLACK

count > 7: S5=WHITE and S7=BLACK

count > -1 and count < 4: S5=WHITE and S6=WHITE and S7=WHITE

S5=BLACK and S7=WHITE

count > 3 and count < 8: S5=BLACK and S7=WHITE

count > 7: S5=BLACK and S7=WHITE

count > -1 and count < 4: S5=WHITE and S6=BLACK and S7=WHITE

count > 3 and count < 8: S5=WHITE and S6=BLACK and S7=WHITE

count > 7: S5=WHITE and S6=BLACK and S7=WHITE

S5=BLACK and

S6=BLACK and

S7=BLACK

S6=BLACK and

S7=WHITE

S5=WHITE and

S6=BLACK

S5=BLACK and

S6=BLACK and

S7=BLACK

**S\_502**

MOVE FORWARD (facing moving direction)

**S\_504**

TURN LEFT (facing moving direction)

**S\_503**

TURN RIGHT (facing moving direction)

**S\_506**

TURN LEFT (at the junction)

**S\_508**

STOP CLAMP\_RELEASE count = count + 1

**S\_507**

TURN RIGHT (at the junction)

count > 3 and count < 8: S5=BLACK and S7=WHITE

count > 7: S5=BLACK and S7=WHITE

S5=WHITE and

S6=BLACK and

S7=WHITE

count > -1 and count < 4: S5=WHITE and S7=BLACK

count > 7: S5=WHITE and S7=BLACK

S5=WHITE and

S6=BLACK and

S7=WHITE

count > -1 and count < 4: S3=BLACK and S5=WHITE and S6= WHITE and S7= WHITE and time > 0.2 sec

count > 3 and count < 8: S3=BLACK and S5=WHITE and S6= WHITE and S7= WHITE and time > 0.2 sec

count > 7: S3=BLACK and S5=WHITE and S6= WHITE and S7= WHITE

**S\_509**

TURN LEFT (at the junction)

**S\_510**

TURN RIGHT (at the junction)

S3=BLACK and

S5=WHITE and

S6=WHITE and

S7=WHITE

S3=BLACK and

S5=WHITE and

S6=WHITE and

S7=WHITE

count > 3 and count < 8:

time > 0 sec and (S5=BLACK and S6=BLACK and S7=BLACK)

count > -1 and count < 4:

time > 0 sec and (S5=BLACK and S6=BLACK and S7=BLACK)

S3=BLACK and

S5=WHITE and

S6=WHITE and

S7=WHITE

S5=WHITE and

S6=WHITE and

S7=BLACK

S5=BLACK and

S6=WHITE and

S7=WHITE

S3=BLACK and S5=WHITE and

S6=WHITE and S7=WHITE

S5=WHITE and

S6=BLACK and

S7=WHITE

S3=BLACK and

S5=WHITE and

S6=WHITE and

S7=WHITE

time > 0.05 sec gfgffsec

**S\_511**

If count > -1 and count < 4: TURN LEFT

If count > 3 and count < 8: TURN RIGHT