State diagram of FSM design of the robot car

Class: ENGG1100 - J   Group Number: 21

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

count = 12 →

S_666
STOP
REAR_POSITION
CLAMP_OPEN
(program ends)

time > 0.25 sec

S_102
MOVE
FORWARD

S2=WHITE and S4=WHITE

S_101

NOT(S2=WHITE and S4=WHITE)

S2=BLACK and S4=WHITE

S_104
TURN LEFT

NOT(S2=BLACK and S4=WHITE)

S2=WHITE and S4=BLACK

NOT(S2=WHITE and S4=BLACK)

S_103
TURN RIGHT

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

S_201
MOVE FORWARD
(a little bit)

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_202

If count > -1 and count < 4:	TURN LEFT
If count > 3 and count < 8:	TURN RIGHT

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

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

count > 7 and time > 0.1 sec

S2=WHITE and S4=BLACK

S_301

S2=WHITE and S4=WHITE

S_303
TURN RIGHT

NOT(S2=WHITE and S4=BLACK)

S_302
MOVE FORWARD

NOT(S2=WHITE and S4=WHITE)

S2=BLACK and S4=WHITE

NOT(S2=BLACK and S4=WHITE)

S1=BLACK

S_304
TURN LEFT

S1=BLACK

S1=BLACK

S1=BLACK

S_401
STOP
CLAMP_CLOSE

time > 0.5 sec and S1=BLACK

S_402
STOP
REAR_POS

S1=BLACK

S_501

S_501

S_502
MOVE FORWARD
(facing moving
direction)

S_503
TURN RIGHT
(facing moving
direction)

S_504
TURN LEFT
(facing moving
direction)

S_505
MOVE FORWARD
(a little bit)

time > 0.05 sec and
NOT(S5=WHITE and
S7=WHITE)

S5=BLACK and
S6=BLACK and
S7=BLACK

S6=BLACK and
S7=WHITE

S5=BLACK and
S6=BLACK and
S7=BLACK

S5=WHITE and
S6=BLACK

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

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=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

S_505
MOVE FORWARD
(a little bit)

S_506
TURN LEFT
(at the junction)

S5=WHITE and
S6=BLACK and
S7=WHITE

count > 3 and count < 8:   S5=BLACK and S7=WHITE
count > 7:   S5=BLACK and S7=WHITE

S_507
TURN RIGHT
(at the junction)

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

S3=BLACK and
S5=WHITE and
S6=WHITE and
S7=WHITE

S_508
STOP
CLAMP_RELEASE
count = count + 1

S3=BLACK and
S5=WHITE and
S6=WHITE 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

S3=BLACK and
S5=WHITE and
S6=WHITE and
S7=WHITE

S3=BLACK and
S5=WHITE and
S6=WHITE and
S7=WHITE

S_509
TURN LEFT
(at the junction)

count > 3 and count < 8:
time > 0 sec and (S5=BLACK
and S6=BLACK and S7=BLACK)

S_510
TURN RIGHT
(at the junction)

count > -1 and count < 4:
time > 0 sec and (S5=BLACK
and S6=BLACK and S7=BLACK)

S5=WHITE and
S6=WHITE and
S7=BLACK

S_511
If count > -1 and count < 4:   TURN LEFT
If count > 3 and count < 8:   TURN RIGHT

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

S_999

time > 0.05 sec