Research Track2 Assignment1

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Task robot should do

Robot should pick up all silver boxes without hitting on the wall

Definition of Success

Robot finishes
driving around the circuit
(w/o stuck and wrong direction)

Experiment’s condition

- Each of the robots with prof code and my code drove 25 times respectively
- Success rate, rate of missing box, num of collision, wrong direction, stuck and lap time were measured in each attempts.

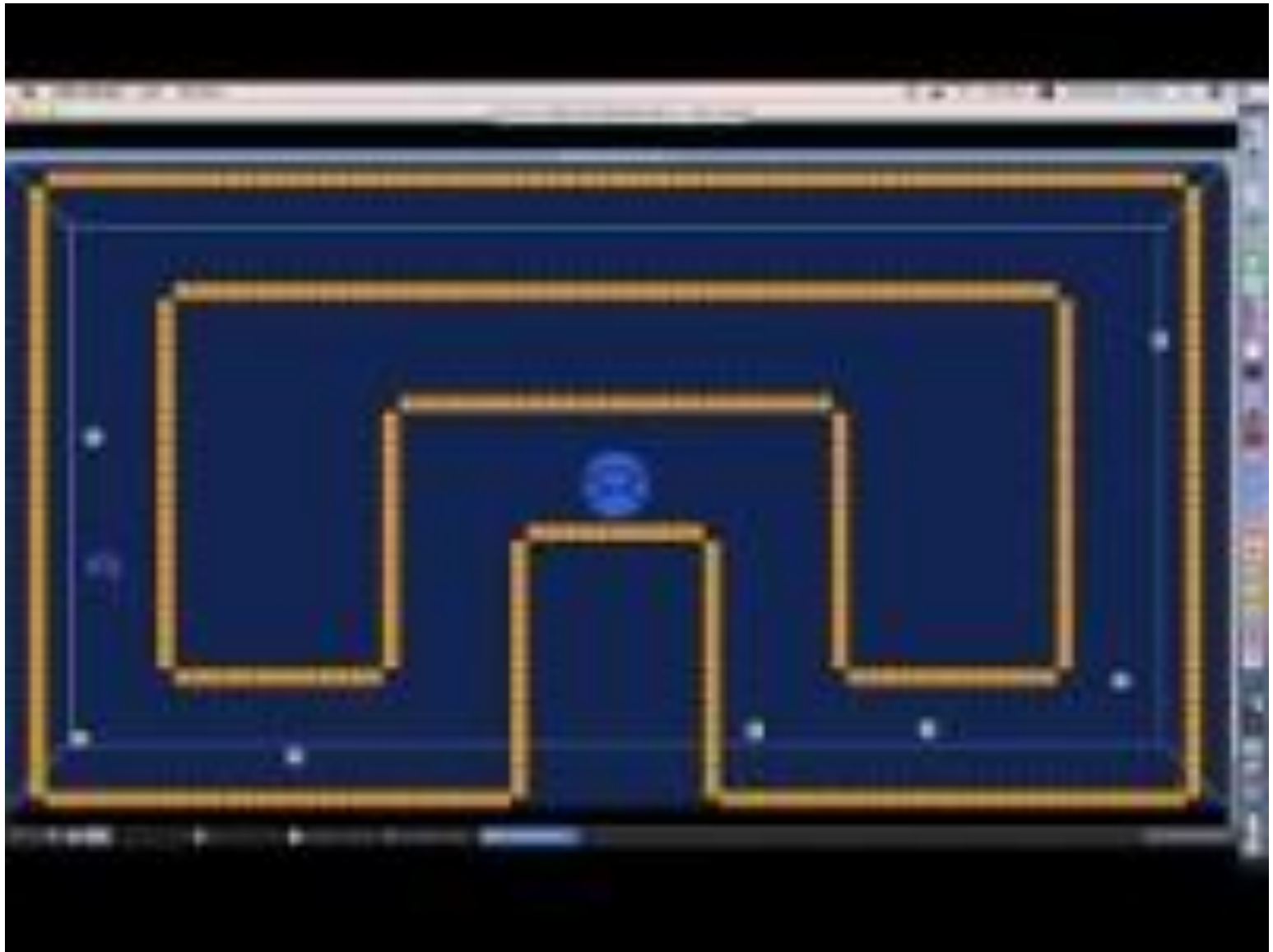
Raw data (Prof code)

Prof						
	rate of missing box(%)	num of colligion (n)	wrong direction (n)	stuck (n)	fail	lap time (s)
1	28.6	1	0	0	0	180
2	14.3	1	0	0	0	185
3	71.4	1	0	1	1	infinite
4	28.6	1	1	0	1	infinite
5	71.4	1	0	1	1	infinite
6	57.1	1	0	1	1	infinite
7	0	0	1	0	1	infinite
8	57.1	1	0	1	1	infinite
9	0	1	0	0	0	188
10	71.4	1	0	1	1	infinite
11	0	0	0	0	0	170
12	0	1	0	0	0	178
13	57.1	1	0	1	1	infinite
14	71.4	1	0	1	1	infinite
15	57.1	1	0	1	1	infinite
16	28.6	1	0	0	0	188
17	14.3	1	0	0	0	180
18	71.4	1	1	0	1	infinite
19	0	1	0	0	0	185
20	28.6	1	0	1	1	infinite
21	0	0	0	0	0	182
22	57.1	1	0	1	1	infinite
23	71.4	1	1	0	1	infinite
24	28.6	1	1	0	1	infinite
25	71.4	1	0	1	1	infinite

Raw data (my [Yusuke] code)

Yusuke						
	rate of missing box(%)	num of colligion (n)	wrong direction (n)	stuck (n)	fail	lap time (s)
1	80	3	0	1	1	infinite
2	66.7	0	1	0	1	infinite
3	50	1	0	1	1	infinite
4	57.1	0	1	0	1	infinite
5	57.1	1	1	0	1	infinite
6	57.1	3	1	0	1	infinite
7	83.3	0	1	0	1	infinite
8	66.7	0	1	0	1	infinite
9	71.4	1	0	1	1	infinite
10	71.4	1	0	1	1	infinite
11	66.7	0	1	0	1	infinite
12	83.3	0	1	0	1	infinite
13	71.4	1	0	1	1	infinite
14	57.1	1	1	0	1	infinite
15	66.7	0	1	0	1	infinite
16	57.1	1	1	0	1	infinite
17	71.4	1	0	1	1	infinite
18	66.7	0	1	0	1	infinite
19	80	2	0	1	1	infinite
20	71.4	1	0	1	1	infinite
21	83.3	0	1	0	1	infinite
22	66.7	0	1	0	1	infinite
23	83.3	0	1	0	1	infinite
24	80	1	0	1	1	infinite
25	71.4	1	0	1	1	infinite

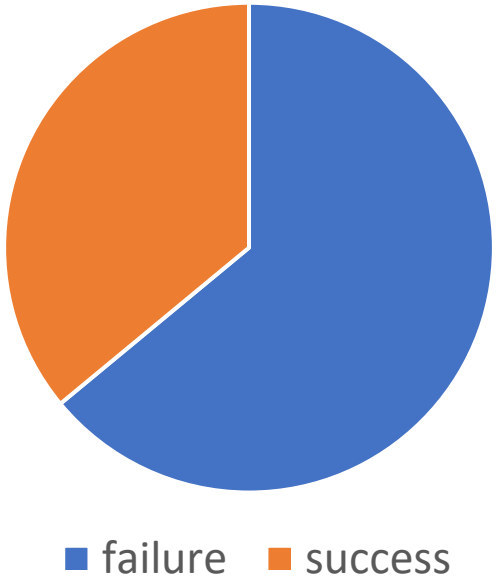
Movie with my code



Success rate (Prof code vs my code)

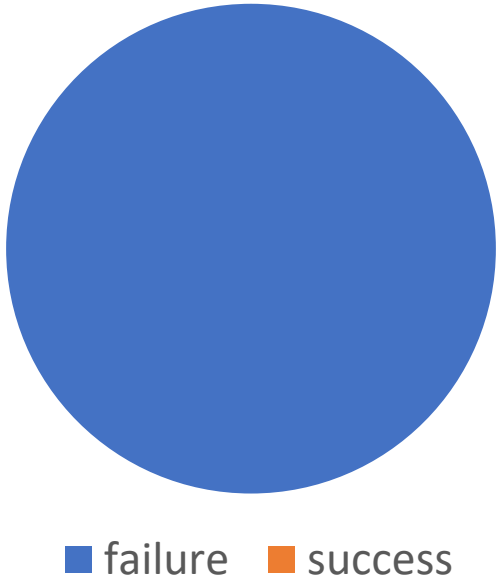
[Prof] driving in circuit properly

36%



[Yusuke] driving in circuit properly

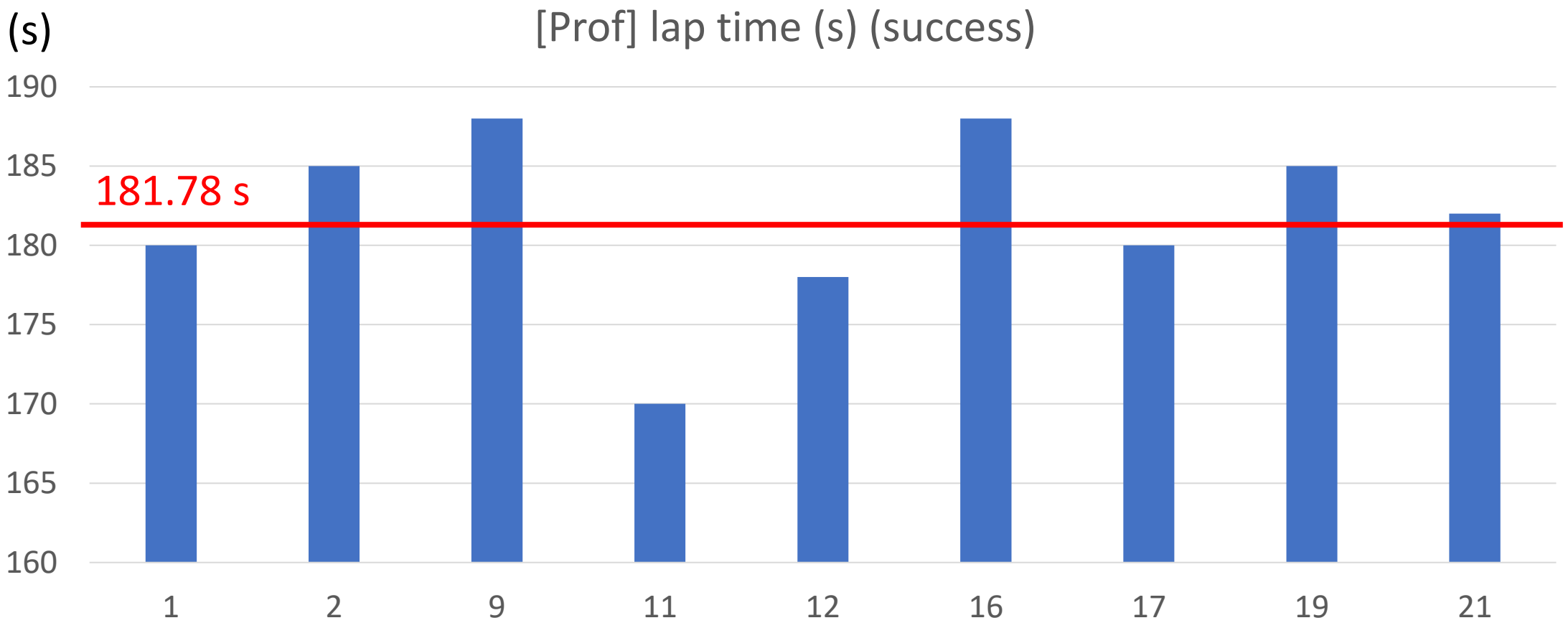
0%



My code’s robot never succeeded in the task, but prof’s robot did one in three

Detailed analysis on prof code

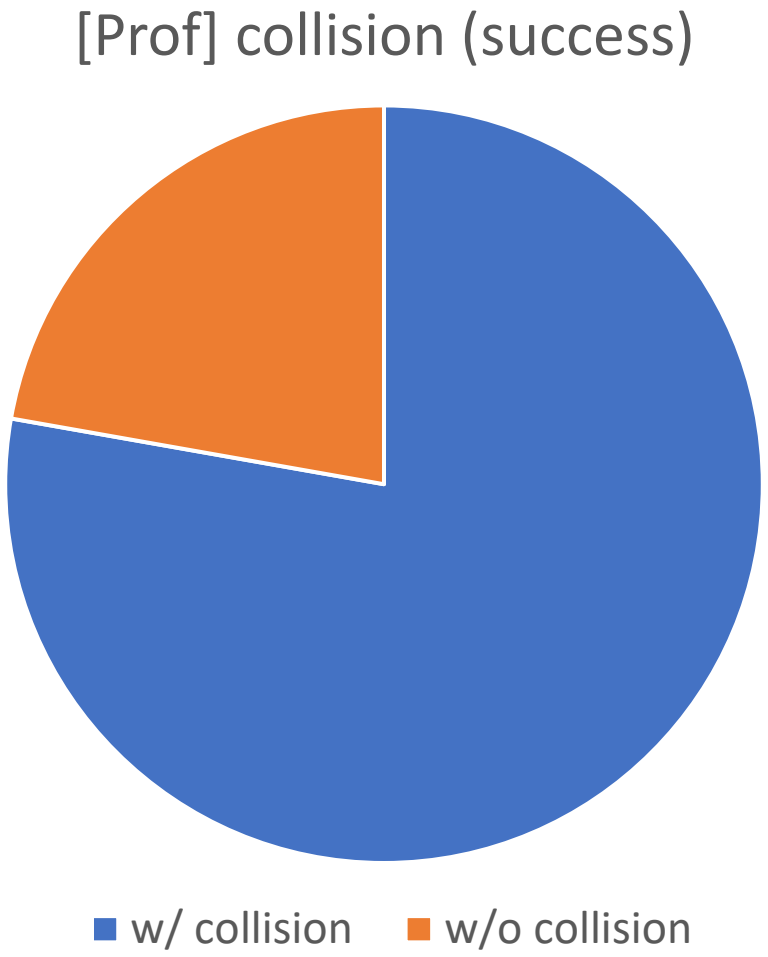
Lap time (Prof code)



In the task, but it took prof’s robot about 3 min to drive around the circuit

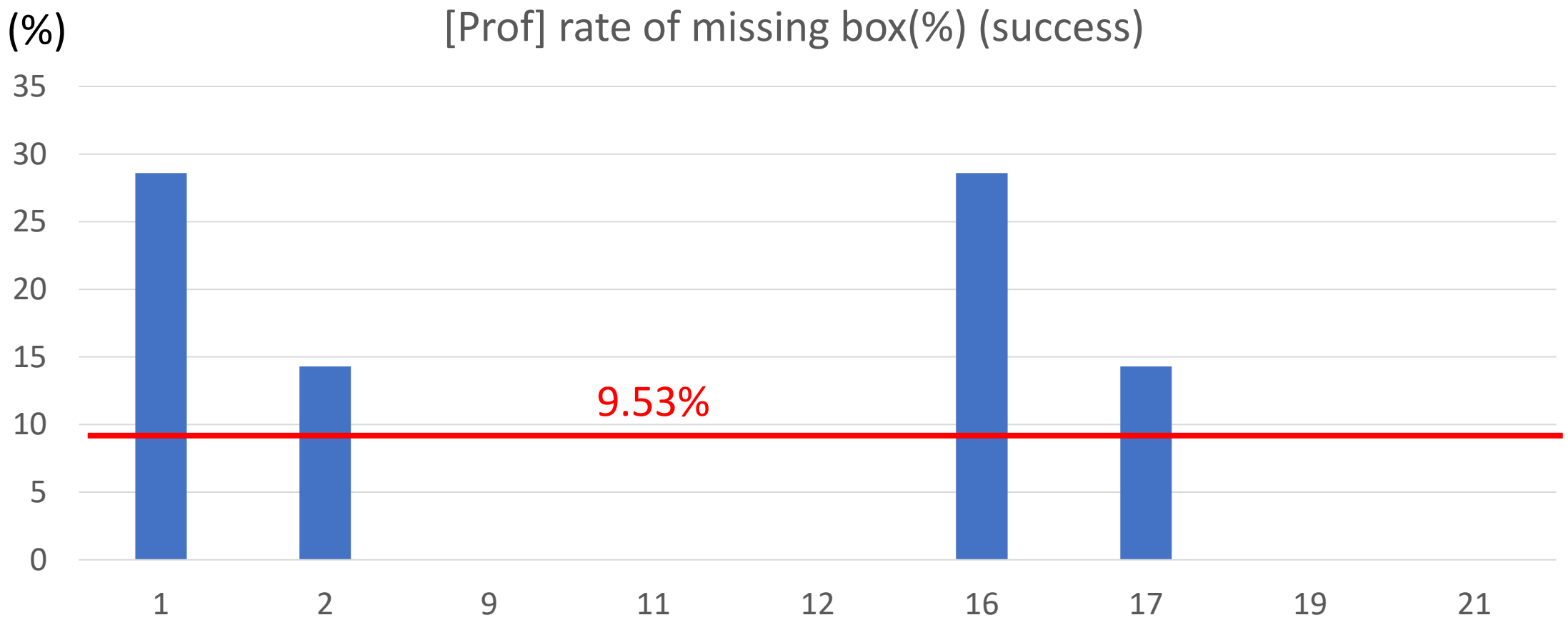
Without collision rate

22.22%



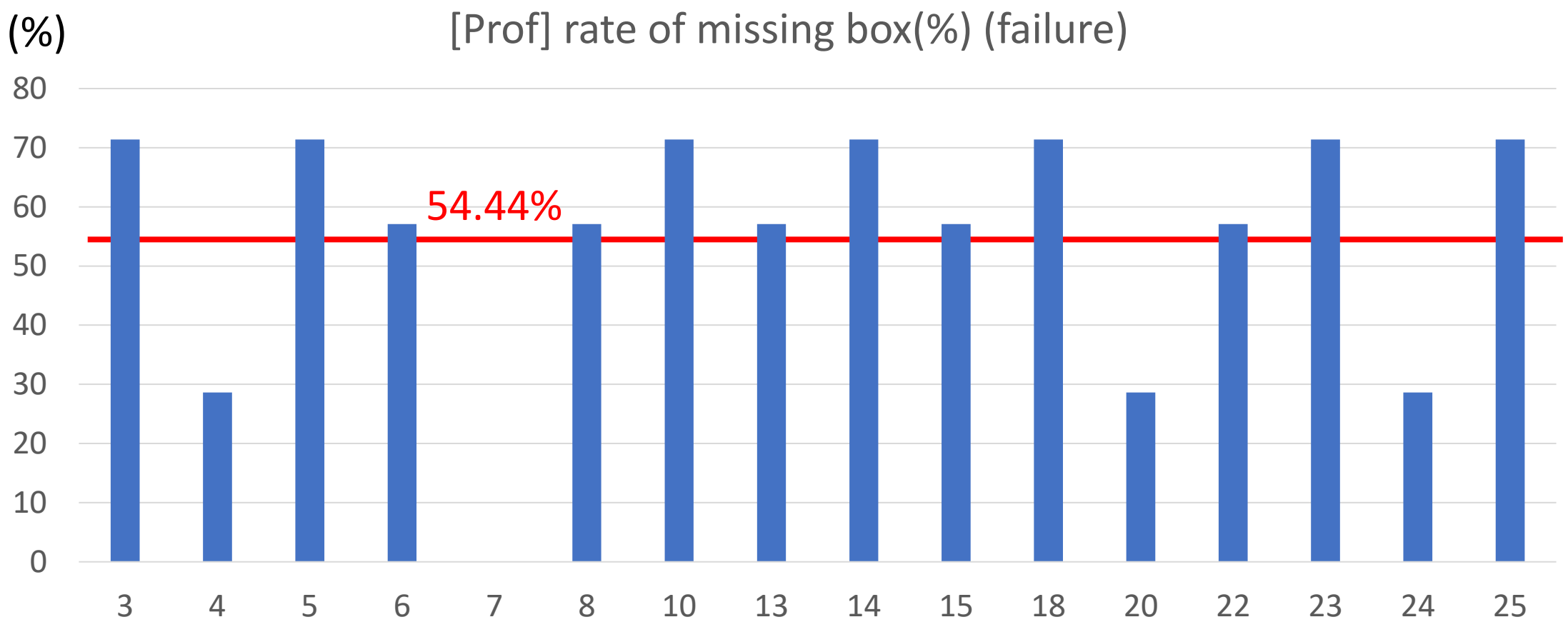
In most of cases,
prof's robot collided
before finishing the task

Rate of missing box in success (Prof code)



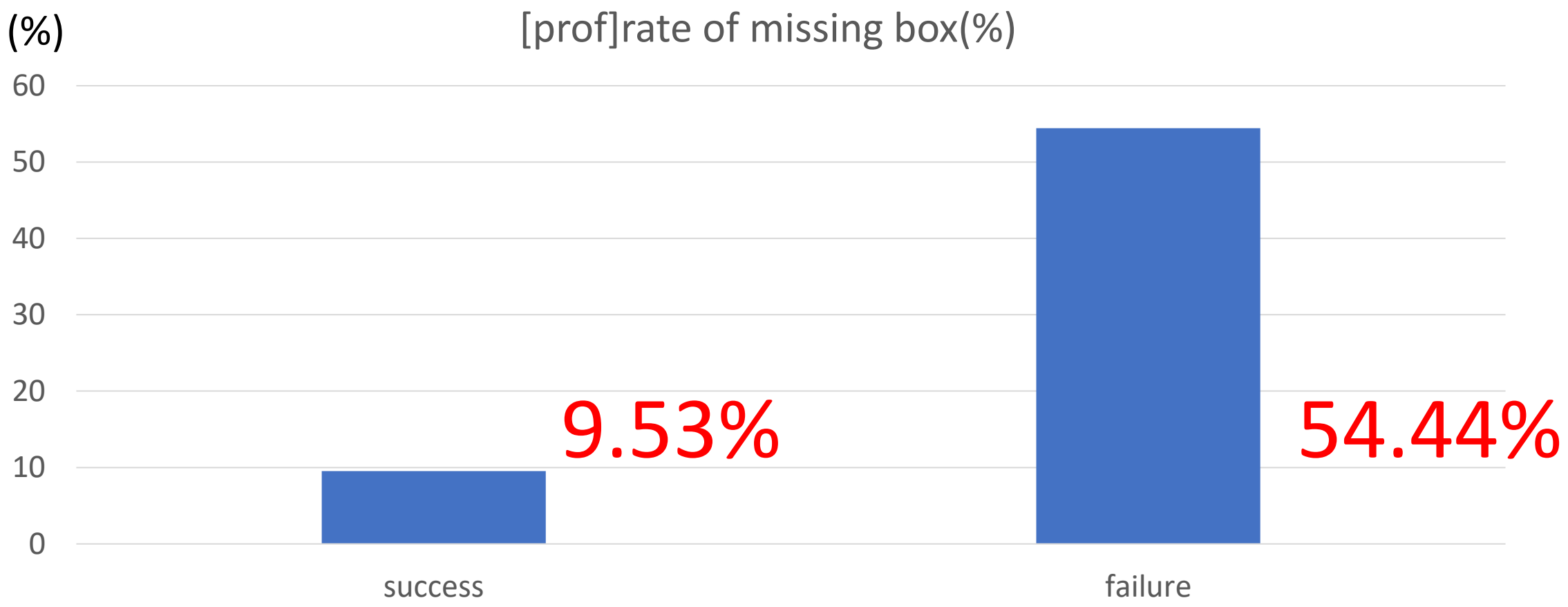
In success, robot picked up most of the boxes

Rate of missing box in failure (Prof code)



In failure, robot didn’t pick up many boxes including left ones in the rest of the path

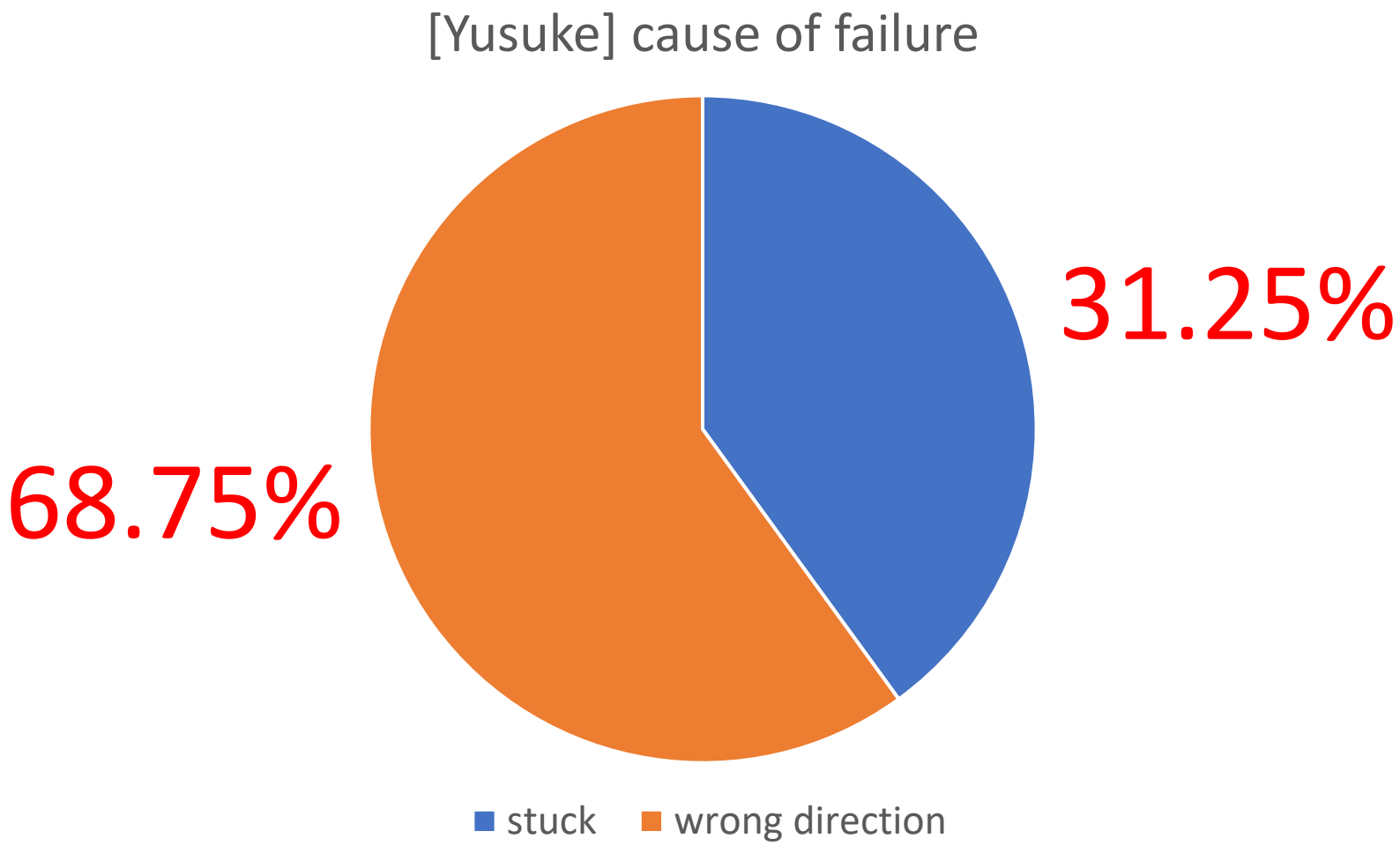
Rate of missing box (Prof code)



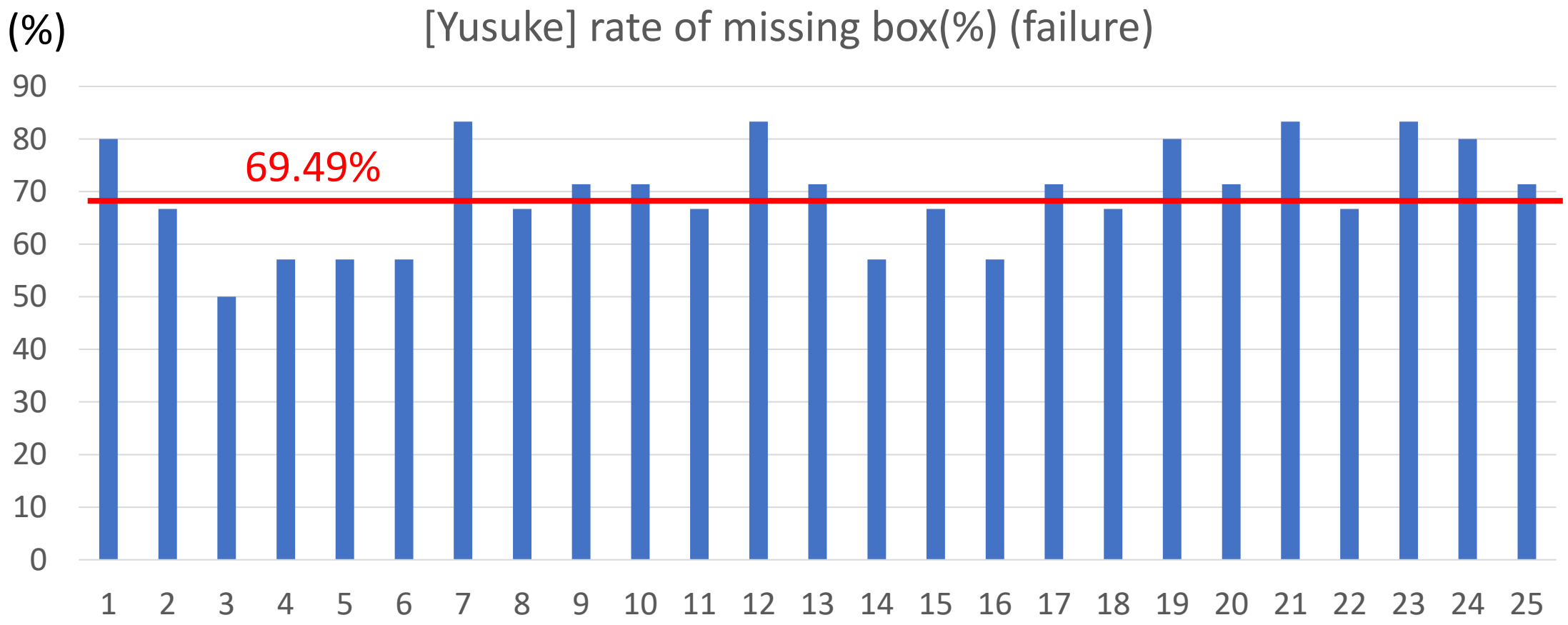
Robot should drive around the circuit properly to pick up as many boxes as possible

Detailed analysis on my code

Cause of failure (my code)

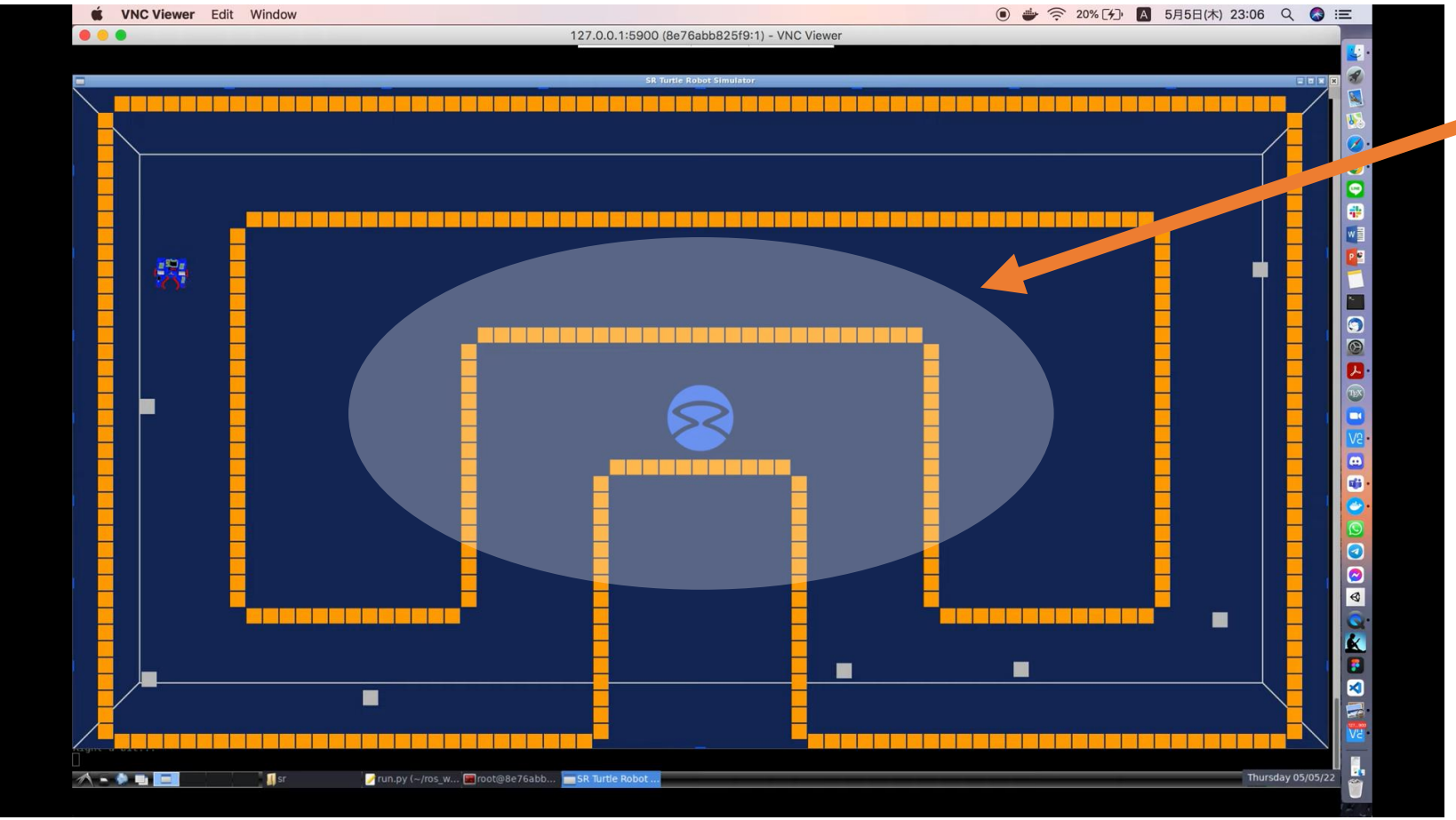


Rate of missing box in failure (my code)



My code’s robot died after picking up 2-3 boxes out of 7boxes

Discussion –why didn’t my robot succeed? -



This gap is
Main cause of fail

In this case,
Robot missed
the following
4th box