Initial Pose: (10, 10, 9) Initializing belief with a Point mass Distribution at: (10, 10, 9) Initial Pose: (10, 10, 9) Initializing belief with a Point mass Distribution at: (10, 10, 9) ----- 0 ------| Resetting Robot pose ----- PREDICTION STATS -----GT index : (11, 9, 7) Prior Bel index : (11, 11, 5) with prob = 0.0014320 POS ERROR : (0.089, -0.395, 47.655) ----- PREDICTION STATS -----| Executing Observation Loop at: 30 deg/s ----- UPDATE STATS -----GT index : (11, 9, 7) Bel index : (12, 9, 8) with prob = 0.99999999Bel\_bar prob at index = 0.0010879111540534126 GT : (0.389, -0.095, -22.345) Belief: (0.500, -0.100, -10.000) POS ERROR: (-0.111, 0.005, -12.345) ----- UPDATE STATS ---------- 1 ----------- PREDICTION STATS -----GT index : (13, 7, 8) Prior Bel index : (12, 7, 12) with prob = 0.0011267 POS ERROR : (0.172, 0.055, -72.865) ----- PREDICTION STATS -----| Executing Observation Loop at: 30 deg/s ----- UPDATE STATS -----GT index : (13, 7, 8) Bel index : (13, 8, 8) with prob = 1.0 Bel\_bar prob at index = 0.0010887857796529705 GT : (0.672, -0.445, -2.865)

Belief: (0.700, -0.300, -10.000)

POS ERROR : (-0.028, -0.145, 7.135) UPDATE STATS
2
UPDATE STATS GT index : (14, 7, 9) Bel index : (14, 6, 8) with prob = 0.7280361 Bel_bar prob at index = 0.001330310875054794
GT : (0.971, -0.460, 3.323)  Belief : (0.900, -0.700, -10.000)  POS ERROR : (0.071, 0.240, 13.323)
3
GT : (1.331, -0.439, 44.138) Belief : (1.300, -0.700, 30.000) POS ERROR : (0.031, 0.261, 14.138)

------ 4 ----------- PREDICTION STATS -----GT index : (17, 8, 14) Prior Bel index : (18, 7, 12) with prob = 0.0009668POS ERROR : (-0.165, 0.281, 34.299) ----- PREDICTION STATS -----| Executing Observation Loop at: 30 deg/s ----- UPDATE STATS -----GT index : (17, 8, 14) Bel index : (17, 9, 14) with prob = 1.0 Bel\_bar prob at index = 0.0008954584036274626 GT : (1.535, -0.219, 107.299) Belief: (1.500, -0.100, 110.000) POS ERROR: (0.035, -0.119, -2.701) ----- UPDATE STATS ---------- 5 ----------- PREDICTION STATS -----GT index : (16, 11, 14) Prior Bel index : (15, 11, 13) with prob = 0.0009689POS ERROR : (0.287, -0.042, 17.299) ----- PREDICTION STATS -----| Executing Observation Loop at: 30 deg/s ----- UPDATE STATS -----GT index : (16, 11, 14) Bel index : (16, 11, 14) with prob = 0.9999999Bel\_bar prob at index = 0.000902693442950474: (1.387, 0.258, 107.299) Belief: (1.300, 0.300, 110.000) POS ERROR: (0.087, -0.042, -2.701) ----- UPDATE STATS -----

6
UPDATE STATS GT index : (16, 13, 14) Bel index : (16, 13, 14) with prob = 0.9989833 Bel_bar prob at index = 0.000884026805723271
GT : (1.323, 0.673, 115.893)  Belief : (1.300, 0.700, 110.000)  POS ERROR : (0.023, -0.027, 5.893)
7
GT : (1.250, 1.148, 115.893)  Belief : (1.300, 1.100, 110.000)  POS ERROR : (-0.050, 0.048, 5.893)
8

GT : (1.250, 1.148, 176.189)  Belief : (1.300, 1.100, 170.000)  POS ERROR : (-0.050, 0.048, 6.189)
9
GT : (0.951, 1.167, 177.335) Belief : (1.100, 1.100, 170.000) POS ERROR : (-0.149, 0.067, 7.335)
PREDICTION STATS

GT index : (13, 15, 17)  Prior Bel index : (13, 15, 17) with prob = 0.0012302  POS ERROR : (-0.078, 0.083, 3.897)
UPDATE STATS GT index : (13, 15, 17) Bel index : (13, 16, 17) with prob = 0.9999999 Bel_bar prob at index = 0.00118787629963357
GT : (0.622, 1.183, 173.897) Belief : (0.700, 1.300, 170.000) POS ERROR : (-0.078, -0.117, 3.897)
11
UPDATE STATS GT index : (12, 16, 17) Bel index : (11, 16, 17) with prob = 0.9999999 Bel_bar prob at index = 0.0016051634000686175
GT : (0.426, 1.224, 168.168)  Belief : (0.300, 1.300, 170.000)  POS ERROR : (0.126, -0.076, -1.832)
12

POS ERROR : (0.285, 0.016, 18.168)
PREDICTION STATS   Executing Observation Loop at: 30 deg/s
1 3
UPDATE STATS
GT index : (9, 16, 17)
Bel index : (9, 16, 17) with prob = 0.9999999
Bel_bar prob at index = 0.0006813692174694827
GT : (-0.015, 1.316, 168.168)
Belief: (-0.100, 1.300, 170.000)
POS ERROR : (0.085, 0.016, -1.832)
UPDATE STATS
13
PREDICTION STATS
GT index : (9, 16, 17)
Prior Bel index : $(8, 16, 17)$ with prob = $0.0021924$
POS ERROR : (0.236, 0.026, 3.897)
Executing Observation Loop at: 30 deg/s
UPDATE STATS
GT index : (9, 16, 17)
Bel index : (9, 16, 17) with prob = 1.0
Bel_bar prob at index = 0.002098885053862845
GT : (-0.064, 1.326, 173.897)
Belief : (-0.100, 1.300, 170.000)
POS ERROR : (0.036, 0.026, 3.897)
14
PREDICTION STATS
GT index : (7, 16, 17)
Prior Bel index : (6, 16, 17) with prob = 0.0008342
POS ERROR : (0.159, 0.077, 3.897)
PREDICTION STATS

Executing Observation Loop at: 30 deg/s
GT : (-0.541, 1.377, 173.897)  Belief : (-0.500, 1.500, 170.000)  POS ERROR : (-0.041, -0.123, 3.897)
15
GT : (-0.541, 1.377, -114.348) Belief : (-0.900, 1.300, -110.000) POS ERROR : (0.359, 0.077, -4.348)
16

GT index : (7, 15, 3)  Bel index : (7, 15, 3) with prob = 0.9999998  Bel_bar prob at index = 0.001646587450980982
GT : (-0.586, 1.182, -102.889)  Belief : (-0.500, 1.100, -110.000)  POS ERROR : (-0.086, 0.082, 7.111)
17
UPDATE STATS
GT : (-0.620, 0.985, -100.024) Belief : (-0.900, 0.700, -90.000) POS ERROR : (0.280, 0.285, -10.024)
18

Bel index : (5, 11, 4) with prob = 1.0 Bel bar prob at index = 0.001261692756918517 GT : (-0.673, 0.690, -101.170) Belief: (-0.900, 0.300, -90.000) POS ERROR: (0.227, 0.390, -11.170) ----- UPDATE STATS ---------- 19 ----------- PREDICTION STATS -----GT index : (6, 11, 3) Prior Bel index : (5, 12, 0) with prob = 0.0018618 POS ERROR : (0.169, -0.104, 67.684) ----- PREDICTION STATS -----| Executing Observation Loop at: 30 deg/s ----- UPDATE STATS -----GT index : (6, 11, 3) Bel index : (6, 12, 3) with prob = 0.99999999Bel bar prob at index = 0.0018277519335442736GT : (-0.731, 0.396, -102.316) Belief: (-0.700, 0.500, -110.000) POS ERROR: (-0.031, -0.104, 7.684) ----- UPDATE STATS ---------- 20 ----------- PREDICTION STATS -----GT index : (6, 11, 4) Prior Bel index : (6, 12, 6) with prob = 0.0024478POS ERROR : (-0.046, -0.203, -43.148) ----- PREDICTION STATS -----| Executing Observation Loop at: 30 deg/s ----- UPDATE STATS -----GT index : (6, 11, 4) Bel index : (5, 11, 4) with prob = 0.9343558Bel\_bar prob at index = 0.002076128895455352

GT : (-0.746, 0.297, -93.148)  Belief : (-0.900, 0.300, -90.000)  POS ERROR : (0.154, -0.003, -3.148)
21
UPDATE STATS GT index : (6, 9, 4) Bel index : (5, 9, 4) with prob = 0.9999999 Bel_bar prob at index = 0.0013903270476892497
GT : (-0.763, -0.003, -93.148) Belief : (-0.900, -0.100, -90.000) POS ERROR : (0.137, 0.097, -3.148)
22
UPDATE STATS GT index : (6, 8, 6) Bel index : (6, 8, 5) with prob = 0.9091926 Bel_bar prob at index = 0.0013771597597216183
GT : (-0.666, -0.391, -58.771)

Belief: (-0.700, -0.300, -70.000) POS ERROR: (0.034, -0.091, 11.229)
23
UPDATE STATS GT index : (7, 7, 8) Bel index : (8, 7, 8) with prob = 0.9987911 Bel_bar prob at index = 0.0010836846776436655
GT : (-0.471, -0.435, -1.475)  Belief : (-0.300, -0.500, -10.000)  POS ERROR : (-0.171, 0.065, 8.525)
24
CT . ( 0.240 0.224 24 442)

GT : (-0.248, -0.321, 21.443) Belief : (-0.100, -0.100, 10.000) POS ERROR : (-0.148, -0.221, 11.443)

UPDATE STATS
25
PREDICTION STATS   Executing Observation Loop at: 30 deg/s
UPDATE STATS
GT : (-0.088, -0.129, 35.902)  Belief : (-0.100, -0.100, 30.000)  POS ERROR : (0.012, -0.029, 5.902)
Elapsed time:432.93161511421204