```
Task 1: Start cell: (17, 17) Goal cell: (8, 10)
BTDebug: Message Received.
(0.3970000147819519, 0.42100000381469727, 0.4440000057220459, 0.47699999809265137,
0.5059999823570251, 0.5239999890327454, 0.5659999847412109, 0.625,
0.7129999995231628, 0.8460000157356262, 1.0190000534057617, 1.0989999771118164,
1.1260000467300415, 1.1269999742507935, 1.128000020980835, 1.128999948501587,
1.125, 1.1269999742507935, 0.0, 0.0, 0.0)
Initializing beliefs with a Uniform Distribution
Uniform Belief with each cell value: 0.0001388888888888888
Update Step
  | Update Time: 0.020839214324951172
----- UPDATE STATS -----
GT index : (10, 10, 9)
Bel index : (14, 4, 0) with prob = 0.5906060
Bel_bar prob at index = 0.00013888888888888888
GT : (0.000, 0.000, 0.000)
Belief: (0.619, -0.413, -170.000)
POS ERROR: (-0.619, 0.413, 170.000)
----- UPDATE STATS -----
BTDebug: Message Received.
```

f

BTDebug: Message Received.

BTDebug: Message Received.

(0.3970000147819519, 0.42100000381469727, 0.4440000057220459, 0.47699999809265137,

0.5059999823570251, 0.5239999890327454, 0.5659999847412109, 0.625,

0.7129999995231628, 0.8460000157356262, 1.0190000534057617, 1.0989999771118164,

1.1260000467300415, 1.1269999742507935, 1.128000020980835, 1.128999948501587,

1.125, 1.1269999742507935, 0.0, 0.0, 0.0)

Prediction Step

Uniform Belief with each cell value: 0.0 | Prediction Time: 3.477532148361206

----- PREDICTION STATS -----

GT index : (10, 10, 9)

Prior Bel index : (0, 19, 6) with prob = 0.7558650

POS ERROR : (1.306, -0.713, 50.000) ------ PREDICTION STATS -----

Update Step

| Update Time: 0.01747751235961914

----- UPDATE STATS -----

GT index : (10, 10, 9)

Bel index : (0, 17, 7) with prob = 0.9999999 Bel bar prob at index = 2.346605342047061e-05

Task2: Start cell: (3, 9) Goal cell: (9, 17)

BTDebug: Message Received.

51.494407653808594)

Initializing beliefs with a Uniform Distribution

Uniform Belief with each cell value: 0.0001388888888888888

Update Step

| Update Time: 0.023487091064453125

```
----- UPDATE STATS -----
GT index : (4, 15, 11)
Bel index : (8, 17, 7) with prob = 0.9999999
Bel bar prob at index = 0.0001388888888888888
     : (-0.789, 0.379, 51.494)
Belief: (-0.206, 0.562, -30.000)
POS ERROR: (-0.582, -0.184, 81.494)
----- UPDATE STATS -----
BTDebug: Message Received.
```

BTDebug: Message Received. BTDebug: Message Received.

(1.5579999685287476, 0.30399999022483826, 0.38199999928474426, 0.7080000042915344, 0.9860000014305115, 1.031000018119812, 0.5519999861717224, 0.4690000116825104, 1.6629999876022339, 1.8200000524520874, 2.1760001182556152, 0.6389999985694885, 0.6439999938011169, 0.4429999887943268, 0.3720000088214874, 0.3330000042915344, 0.39500001072883606, 0.4440000057220459, -1.9348310232162476, 0.8809289932250977, -10.729324340820312)

Prediction Step

Uniform Belief with each cell value: 0.0 | Prediction Time: 1.077768087387085

----- PREDICTION STATS -----

GT index : (-4, 21, 8)

Prior Bel index : (0, 0, 0) with prob = nan POS ERROR : (-0.629, 1.593, 159.271) ------ PREDICTION STATS ------

Update Step

| Update Time: 0.031149625778198242

----- UPDATE STATS -----

GT index : (-4, 21, 8)

Bel index : (0, 0, 0) with prob = nan

Bel_bar prob at index = nan

Task 3: Start cell: (15, 2) Goal cell: (8, 10)

BTDebug: Message Received.

(2.9149999618530273, 2.503999948501587, 0.3959999978542328, 0.4480000138282776,

- 1.1039999723434448, 1.0399999618530273, 0.6710000038146973, 0.3889999985694885,
- 0.29499998688697815, 0.24199999868869781, 0.20200000703334808,
- 0.18400000035762787, 0.1809999942779541, 0.18400000035762787, 0.19200000166893005,
- 0.20200000703334808, 0.20999999344348907, 0.2280000001192093, 0.0, 0.0, 0.0)

Initializing beliefs with a Uniform Distribution

Uniform Belief with each cell value: 0.0001388888888888888

Update Step

| Update Time: 0.022646665573120117

```
GT index : (10, 10, 9)
Bel index : (2, 3, 9) with prob = 0.99999999
GT : (0.000, 0.000, 0.000)
Belief: (-1.031, -0.488, 10.000)
POS ERROR: (1.031, 0.488, -10.000)
----- UPDATE STATS -----
BTDebug: Message Received.
(0.25600001215934753, 0.34700000286102295, 1.0520000457763672, 0.906000018119812,
0.8370000123977661, 0.7960000038146973, 0.8050000071525574, 0.8330000042915344,
0.8840000033378601, 0.9340000152587891, 1.0010000467300415, 0.9959999918937683,
```

----- UPDATE STATS -----

0.7149999737739563, 0.45100000500679016, 0.37599998712539673, 0.3799999952316284, 0.41100001335144043, 0.41200000047683716, -0.1301637887954712,-0.18701046705245972, 109.99995422363281) **Prediction Step** Uniform Belief with each cell value: 0.002032646232750722 | Prediction Time: 0.9058513641357422 ----- PREDICTION STATS -----GT index : (9, 7, 14) Prior Bel index : (19, 19, 4) with prob = 0.0009993POS ERROR : (-1.436, -0.900, 200.000) ----- PREDICTION STATS -----Update Step | Update Time: 0.0226285457611084 ----- UPDATE STATS -----GT index : (9, 7, 14) Bel index : (18, 11, 11) with prob = 0.6156527Bel bar prob at index = 0.0004381301110168632 GT : (-0.130, -0.187, 110.000) Belief: (1.169, 0.112, 50.000) POS ERROR: (-1.299, -0.300, 60.000) ----- UPDATE STATS -----Task 4: Start cell: (12, 12) Goal cell: (15, 4) BTDebug: Message Received. (0.7739999890327454, 0.6430000066757202, 0.8029999732971191, 1.187999963760376,0.7710000276565552, 0.33000001311302185, 1.2719999551773071, 1.625, 1.9229999780654907, 0.39800000190734863, 0.296999990940094, 0.4009999930858612, 0.335999995470047, 0.2980000078678131, 0.3700000047683716, 0.6869999766349792, 0.6660000085830688, 1.0379999876022339, 0.0, 0.0, 0.0) Initializing beliefs with a Uniform Distribution Uniform Belief with each cell value: 0.0001388888888888888 Update Step | Update Time: 0.01787877082824707 ----- UPDATE STATS -----GT index : (10, 10, 9) Bel index : (15, 4, 9) with prob = 0.9999955

GT : (0.000, 0.000, 0.000)

Bel_bar prob at index = 0.0001388888888888888

```
Belief: (0.756, -0.413, 10.000)
POS ERROR: (-0.756, 0.413, -10.000)
----- UPDATE STATS -----
5 16
6 16
7 16
8 16
BTDebug: Message Received.
```

```
BTDebug: Message Received.
(0.7820000052452087, 0.5379999876022339, 0.6129999756813049, 0.4779999852180481,
0.4359999895095825, 0.4180000126361847, 0.4169999957084656, 0.4169999957084656,
0.4269999861717224, 0.6539999842643738, 2.203000068664551, 0.1459999978542328,
0.9940000176429749, 0.5270000100135803, 0.546999990940094, 0.41999998688697815,
0.4259999990463257, 0.42800000309944153, -0.9497210383415222, -0.5288527011871338,
-109.432861328125)
Prediction Step
Uniform Belief with each cell value: 3.3363954355834414e-47
  | Prediction Time: 0.9294445514678955
----- PREDICTION STATS -----
GT index
              : (3, 2, 3)
Prior Bel index : (0, 19, 1) with prob = 0.0198662
POS ERROR
             : (0.357, -1.241, 40.567)
----- PREDICTION STATS -----
Update Step
  | Update Time: 0.022801876068115234
----- UPDATE STATS -----
GT index : (3, 2, 3)
```

```
Bel index : (2, 4, 17) with prob = 0.3735289
Bel bar prob at index = 4.0079467617951885e-06
GT : (-0.950, -0.529, -109.433)
Belief: (-1.031, -0.413, 170.000)
POS ERROR: (0.082, -0.116, -279.433)
----- UPDATE STATS -----
reach the point
Task 5: Start cell: (1, 13) Goal cell: (4, 1)
BTDebug: Message Received.
(0.42800000309944153, 0.847000002861023, 0.5370000004768372, 0.30799999833106995,
0.23600000143051147, 0.2280000001192093, 0.2329999953508377, 0.28600001335144043,
0.4560000002384186, 0.7799999713897705, 1.7359999418258667, 1.4889999628067017,
0.847000002861023, 0.2630000114440918, 1.378000020980835, 0.8999999761581421,
0.8450000286102295, 0.33500000834465027, -0.9497210383415222, -0.5288527011871338,
-109.432861328125)
Initializing beliefs with a Uniform Distribution
Update Step
  | Update Time: 0.02221846580505371
----- UPDATE STATS -----
GT index : (3, 2, 3)
Bel index : (17, 16, 7) with prob = 0.9334542
Bel_bar prob at index = 0.00013888888888888888
GT : (-0.950, -0.529, -109.433)
Belief: (1.031, 0.487, -30.000)
POS ERROR: (-1.981, -1.016, -79.433)
----- UPDATE STATS -----
BTDebug: Message Received.
```

```
BTDebug: Message Received.
(0.22300000488758087, 0.2939999997615814, 0.6309999823570251, 0.6539999842643738,
0.6669999957084656, 0.6819999814033508, 0.6819999814033508, 0.6830000281333923,
0.7099999785423279, 0.7450000047683716, 0.7609999775886536, 0.7820000052452087,
0.7860000133514404, 0.7870000004768372, 0.7870000004768372, 0.8339999914169312,
0.39899998903274536, 0.35100001096725464, -1.0999219417572021,
-0.5109008550643921, 128.0489501953125)
```

Prediction Step

Uniform Belief with each cell value: 1.1570896451580894e-104

| Prediction Time: 3.4240403175354004

----- PREDICTION STATS -----

GT index : (2, 3, 15)

Prior Bel index : (0, 0, 14) with prob = 0.0324800

POS ERROR : (0.206, 0.202, 18.049)

----- PREDICTION STATS -----

Update Step

| Update Time: 0.020380258560180664

----- UPDATE STATS -----

GT index : (2, 3, 15)

Bel index : (3, 6, 11) with prob = 0.8873136 Bel_bar prob at index = 1.2326062151343467e-07

GT : (-1.100, -0.511, 128.049)

Belief: (-0.894, -0.263, 50.000)

POS ERROR: (-0.206, -0.248, 78.049)

----- UPDATE STATS -----

reach the point