#### Evaluating and simulation

#### Distribution calculation

#### Clustering

#### The threshold of bel\_threshold changed things

#### The Distribution have issues on very small distance 🡪centers looked terrible🡪 set threshold to adjust it

#### Obstacle Avoidance

#### Navigation

Nov. 29th :

-draw PPs

Nov. 30th :

-fixed data station will improve the Clustering

-need to add trans\_history into Navigation

-need to add obstacle thing

-change to d>D

-clear all the equation and do all the flowcharts

Dec. 1st :

-Use step\_len = 1.5 bas = 4 : 12 and testing = 1000 table = 0p5 draw bn graph

-Use step\_len = 1.5 bas = 7 and testing = 1000 table = 0p5 draw data amount graph

-Obstacle trying 1: use obstacle\_count 🡪 result obstacle 1 🡪 not good 🡪 got bug

-Obstacle trying 2: use 0.9 percentage 🡪 improved when bn is large enough

if isempty(path)

rand\_direction = ceil(directionNumber\*rand);

currentCoord = generate\_next\_step(directionNumber, directionNumber, rand\_direction, stepLength, currentCoord(1),currentCoord(2),room);

else

dir = 0;

for i = 1 : direction\_number

if obstacleHistory(currentCluster, direction(i))/sum(transHistory(currentCluster, direction(i),:)) > obstacle\_threshold

dir = direction(i);

break;

end

end

if dir == 0

dir = direction(1);

end

currentCoord = generate\_next\_step(directionNumber, directionNumber, dir, stepLength, currentCoord(1),currentCoord(2),room);

end

-Obstacle trying 3: weighted possibility

else

dir = 0;

decision\_p = [];

for i = 1 : direction\_number

bumping\_p = obstacleHistory(currentCluster, direction\_order(i))/sum(transHistory(currentCluster, direction\_order(i),:));

direction\_p = direction\_count(i)/sum(transHistory(currentCluster, direction\_order(i),:));

decision\_p = [decision\_p (1-bumping\_p)\*direction\_p];

end

[maxP ind] = max(decision\_p);

dir = direction\_order(ind);

currentCoord = generate\_next\_step(directionNumber, directionNumber, dir, stepLength, currentCoord(1),currentCoord(2),room);

end

-Record bumping times in testing

if isempty(path)

rand\_direction = ceil(directionNumber\*rand);

[currentCoord bump] = generate\_next\_step(directionNumber, directionNumber, rand\_direction, stepLength, currentCoord(1),currentCoord(2),room);

bump\_count = bump\_count + bump;

else

dir = 0;

decision\_p = [];

for i = 1 : direction\_number

bumping\_p = obstacleHistory(currentCluster, direction\_order(i))/sum(transHistory(currentCluster, direction\_order(i),:));

direction\_p = direction\_count(i)/sum(direction\_count(:));

decision\_p = [decision\_p (1-bumping\_p)\*direction\_p];

end

[maxP ind] = max(decision\_p);

dir = direction\_order(ind);

[currentCoord bump] = generate\_next\_step(directionNumber, directionNumber, dir, stepLength, currentCoord(1),currentCoord(2),room);

bump\_count = bump\_count + bump;

end

-Base:

0 0

3 0

1 9

3 9

0.500000000000000 3.50000000000000

3 4

1 6

2.50000000000000 6

0 2

3 2

0 3

3 7

🡪Base 8 act different

-Change base 8 to (3 6)

Dec. 2nd :

🡪10:5:50 improved not much maybe effected by the position with 7 and 8 base station, choose 12 bas to try again (test 100 to have a try first)

result\_bn12\_10to50 🡪 test 100 🡪can see a little tend

result\_bn\_12\_1to10 🡪 test 100 🡪can see some tend

result\_bn\_12\_1to10🡪 test 1000

🡪1000 times paths generation

Result\_ob3\_5.mat

Base 8 still weird 🡪(3 5) on cmu’s PC’s 10000 test for obstacle avoidance

Dec. 3rd

Test 10000 ….

Dec. 5th

-try if the path direction is fixed, not pick a direction then cover 2pi/direction space

Dec. 6th

-start experiment in lab, put up base stations, connect node to PC, walking while connecting data???

-for the re-mapping thing, set every path start from same real location and assign a visual location on map for it, also use fixed direction information as guidance

* Problem : the direction and cannot work well
* Solve :?? Change direction while generate the path🡪 not so good

From old remapping

1. Change step\_len
2. Constrain dist in mapping by step\_len