MATLAB CODE

attackpegasis

node\_number1=30;

flag=0;

%node\_number=10;

energy=zeros(1,node\_number1);

receive\_factor=512\*50\*0.0001;

send\_factor=512\*12\*0.001;

node\_number=100;

malnode=20;

node\_x=rand(1,node\_number);

node\_y=rand(1,node\_number);

plot(node\_x,node\_y,'.')

hold on

plot(node\_x(1),node\_y(1),'.r')

hold on

plot([node\_x(1) 0],[node\_y(1) 0])

hold on

p=0.15;n=fix(1/p);

for round=1:n

distance=zeros(1);

max\_distance=0;

max\_node=0;

for i=1:node\_number1,

distance(i)=sqrt(node\_x(i)^2+node\_y(i)^2);

if max\_distance<distance(i),

max\_distance=distance(i);

max\_node=i;

end

end

plot(node\_x(max\_node),node\_y(max\_node),'-')

hold on

average\_distance=sum(distance(:))/node\_number;

MD=max\_distance/10000;

connect\_distance=zeros(1,node\_number1);

connect\_node=zeros(1,node\_number1);

connect\_node(1)=max\_node;

connect\_distance(1)=average\_distance;

for i=2:node\_number1,

temp\_node=0;temp\_min\_distance=1.5;

for j=1:node\_number1,

b=0;

for k=1:(i-1),

if j==connect\_node(k),

b=1;

break

end

end

if b==0,

distance=sqrt((node\_x(connect\_node(i-1))-

node\_x(j))^2+(node\_y(connect\_node(i-1))-node\_y(j))^2);

if temp\_min\_distance>distance,

temp\_min\_distance=distance;

temp\_node=j;

end

end

end

if i==malnode &&

temp\_min\_distance=temp\_min\_distance\*100;

end

connect\_distance(i)=temp\_min\_distance;

connect\_node(i)=temp\_node;

delay=connect\_distance(i)/1000

MD

%pause;

if(MD>=delay&&flag==0)

plot([node\_x(connect\_node(i-1))

node\_x(connect\_node(i))],[node\_y(connect\_node(i-1))

node\_y(connect\_node(i))],'-');

energy(connect\_node(i-1))=energy(connect\_node(i-

1))+connect\_distance(i)^2\*send\_factor+receive\_factor;

energy(connect\_node(i))=energy(connect\_node(i))++receive\_factor;

else

plot(node\_x(connect\_node(i)),node\_y(connect\_node(i)),'g');

i=i-1;

flag=1;

end

hold on

end

t=fix(rand(rand(1,1))\*100)+1;

energy(t)=energy(t)+average\_distance^2\*send\_factor+receive\_factor;

end

receive\_factor=512\*50\*0.0001;

receive\_consumption=100\*receive\_factor;

energy\_consumption=zeros(1,node\_number);

send\_factor=512\*12\*0.001;

for i=1:node\_number1,

energy\_consumption(i)=connect\_distance(i)^2\*send\_factor+receive\_factor;

end

consumption=receive\_consumption+sum(energy\_consumption(:))

figure

plot(1:30,energy,'.')

hold on

atckspegasis1n

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energy=zeros(1,node\_number1);

receive\_factor=512\*50\*0.0001;

send\_factor=512\*12\*0.001;

node\_number=100;

malnode=20;

node\_x=rand(1,node\_number);

node\_y=rand(1,node\_number);

plot(node\_x,node\_y,'.')

hold on

plot(node\_x(1),node\_y(1),'.r')

hold on

plot([node\_x(1) 0],[node\_y(1) 0])

hold on

p=0.15;n=fix(1/p);

for round=1:n

distance=zeros(1);

max\_distance=0;

max\_node=0;

for i=1:node\_number1,

distance(i)=sqrt(node\_x(i)^2+node\_y(i)^2);

if max\_distance<distance(i),

max\_distance=distance(i);

max\_node=i;

end

end

plot(node\_x(max\_node),node\_y(max\_node),'-')

hold on

average\_distance=sum(distance(:))/node\_number;

MD=max\_distance/1000;

connect\_distance=zeros(1,node\_number1);

connect\_node=zeros(1,node\_number1);

connect\_node(1)=max\_node;

connect\_distance(1)=average\_distance;

for i=2:node\_number1,

temp\_node=0;temp\_min\_distance=1.5;

for j=1:node\_number1,

b=0;

for k=1:(i-1),

if j==connect\_node(k),

b=1;

break

end

end

if b==0,

distance=sqrt((node\_x(connect\_node(i-1))-

node\_x(j))^2+(node\_y(connect\_node(i-1))-node\_y(j))^2);

if temp\_min\_distance>distance,

temp\_min\_distance=distance;

temp\_node=j;

end

end

end

if i==malnode

temp\_min\_distance=temp\_min\_distance\*1000;

end

connect\_distance(i)=temp\_min\_distance;

connect\_node(i)=temp\_node;

delay=connect\_distance(i)/1000

MD

%pause;

if(MD>=delay)

plot([node\_x(connect\_node(i-1))

node\_x(connect\_node(i))],[node\_y(connect\_node(i-1))

node\_y(connect\_node(i))],'-');

energy(connect\_node(i-1))=energy(connect\_node(i-

1))+connect\_distance(i)^2\*send\_factor+receive\_factor;

energy(connect\_node(i))=energy(connect\_node(i))++receive\_factor;

else if flag==0

plot(node\_x(connect\_node(i)),node\_y(connect\_node(i)),'r\*');

i=node\_number1+1;

flag=1;

break;

end

end

hold on

end

t=fix(rand(rand(1,1))\*100)+1;

energy(t)=energy(t)+average\_distance^2\*send\_factor+receive\_factor;

end

receive\_factor=512\*50\*0.0001;

receive\_consumption=100\*receive\_factor;

energy\_consumption=zeros(1,node\_number);

send\_factor=512\*12\*0.001;

for i=1:node\_number1,

energy\_consumption(i)=connect\_distance(i)^2\*send\_factor+receive\_factor;

end

consumption=receive\_consumption+sum(energy\_consumption(:))

figure

plot(1:30,energy,'.')

hold on

pegasis1

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energy=zeros(1,node\_number1);

receive\_factor=512\*50\*0.0001;

send\_factor=512\*12\*0.001;

node\_number=100;

node\_x=rand(1,node\_number);

node\_y=rand(1,node\_number);

plot(node\_x,node\_y,'.')

hold on

plot(node\_x(1),node\_y(1),'.r')

hold on

plot([node\_x(1) 0],[node\_y(1) 0])

hold on

p=0.15;n=fix(1/p);

for round=1:n

distance=zeros(1);

max\_distance=0;

max\_node=0;

for i=1:node\_number1,

distance(i)=sqrt(node\_x(i)^2+node\_y(i)^2);

if max\_distance<distance(i),

max\_distance=distance(i);

max\_node=i;

end

end

plot(node\_x(max\_node),node\_y(max\_node),'-')

hold on

average\_distance=sum(distance(:))/node\_number;

MD=max\_distance/1000;

connect\_distance=zeros(1,node\_number1);

connect\_node=zeros(1,node\_number1);

connect\_node(1)=max\_node;

connect\_distance(1)=average\_distance;

for i=2:node\_number1,

temp\_node=0;temp\_min\_distance=1.5;

for j=1:node\_number1,

b=0;

for k=1:(i-1),

if j==connect\_node(k),

b=1;

break

end

end

if b==0,

distance=sqrt((node\_x(connect\_node(i-1))-

node\_x(j))^2+(node\_y(connect\_node(i-1))-node\_y(j))^2);

if temp\_min\_distance>distance,

temp\_min\_distance=distance;

temp\_node=j;

end

end

end

connect\_distance(i)=temp\_min\_distance;

connect\_node(i)=temp\_node;

delay=connect\_distance(i)/1000

MD

pause;

if(MD>=delay)

plot([node\_x(connect\_node(i-1))

node\_x(connect\_node(i))],[node\_y(connect\_node(i-1))

node\_y(connect\_node(i))],'-');

else

plot(node\_x(connect\_node(i)),node\_y(connect\_node(i)),'g');

end

hold on

energy(connect\_node(i-1))=energy(connect\_node(i-

1))+connect\_distance(i)^2\*send\_factor+receive\_factor;

energy(connect\_node(i))=energy(connect\_node(i))++receive\_factor;

end

t=fix(rand(rand(1,1))\*100)+1;

energy(t)=energy(t)+average\_distance^2\*send\_factor+receive\_factor;

end

receive\_factor=512\*50\*0.0001;

receive\_consumption=100\*receive\_factor;

energy\_consumption=zeros(1,node\_number);

send\_factor=512\*12\*0.001;

for i=1:node\_number1,

energy\_consumption(i)=connect\_distance(i)^2\*send\_factor+receive\_factor;

end

consumption=receive\_consumption+sum(energy\_consumption(:))

figure

plot(1:30,energy,'.')

hold on