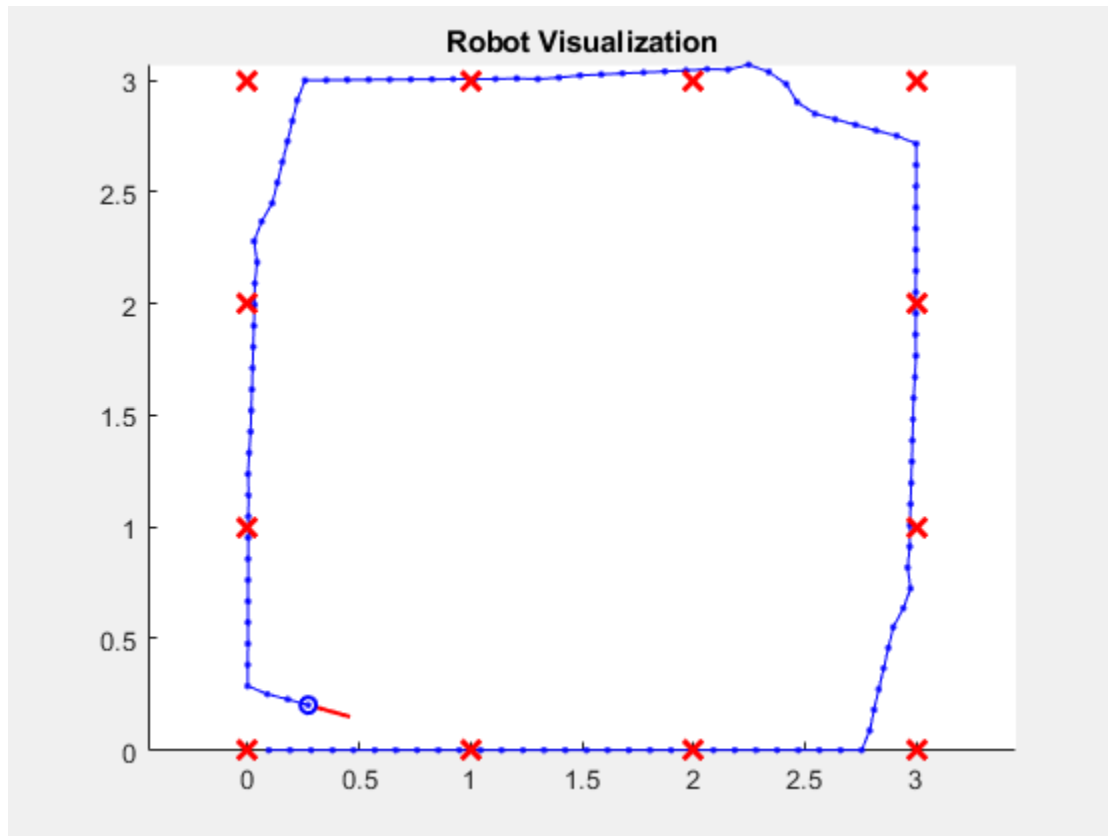
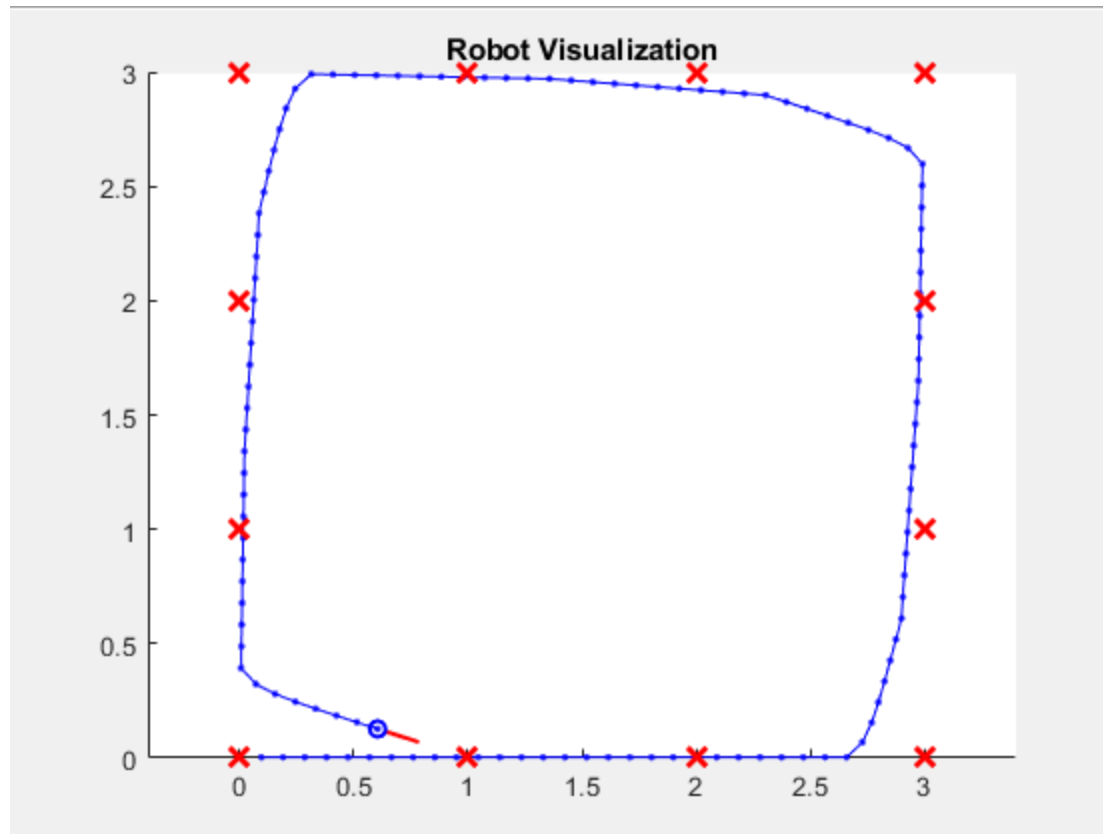


Q4 testing.

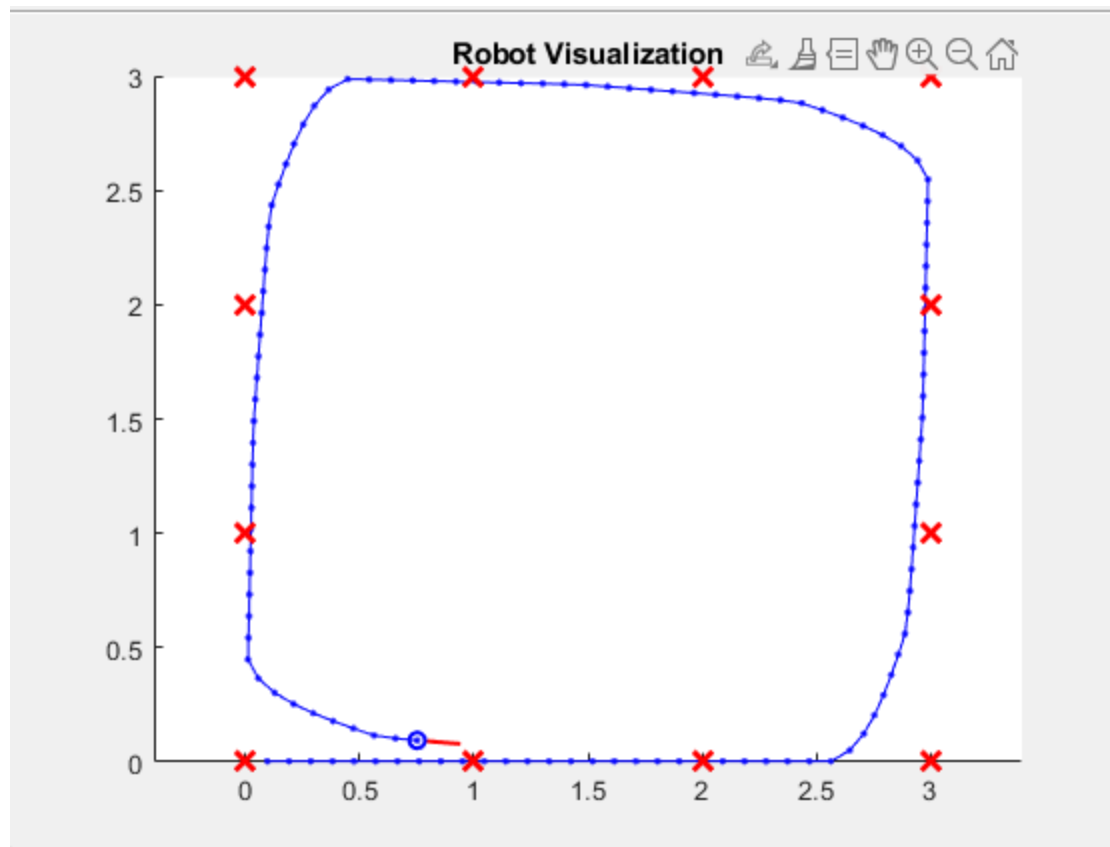
```
waypoints = [0,0; 1,0; 2,0; 3,0; 3,1; 3,2; 3,3; 2,3; 1,3; 0,3; 0,2; 0,1; 0,0;  
1,0; 2,0];
```



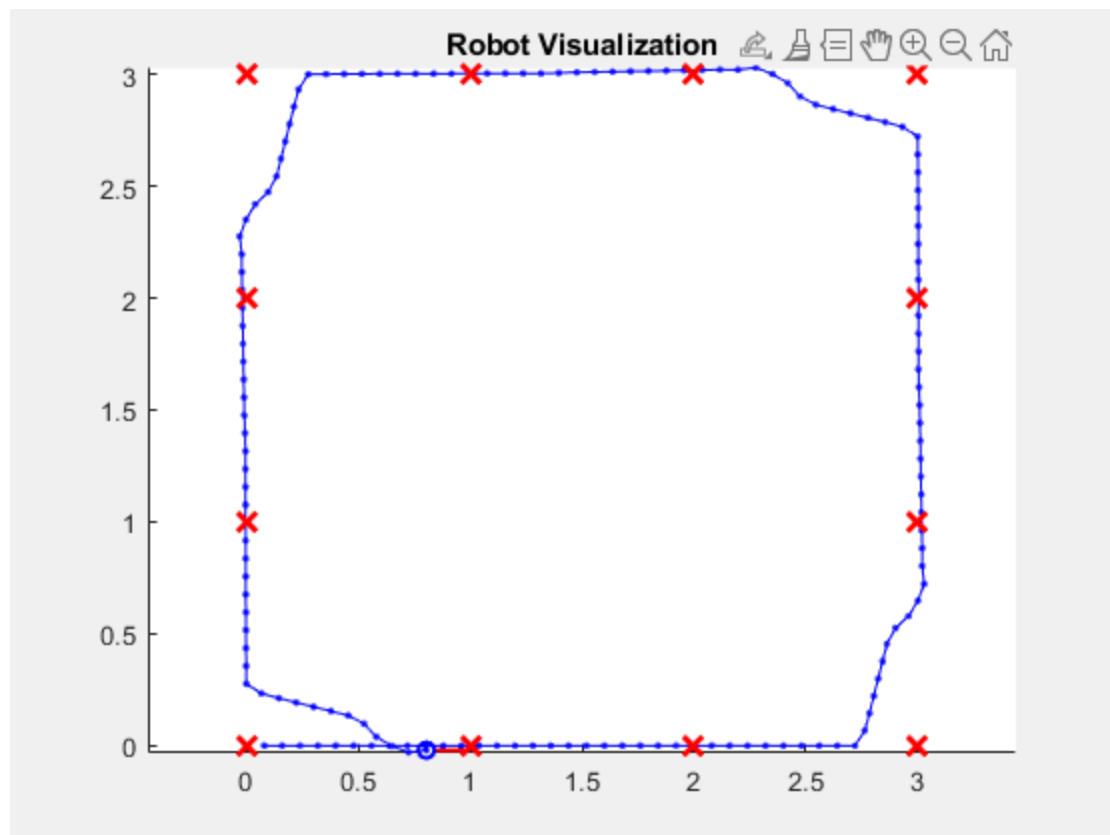
```
LookaheadDistance = 0.4;  
DesiredLinearVelocity = 0.95;
```



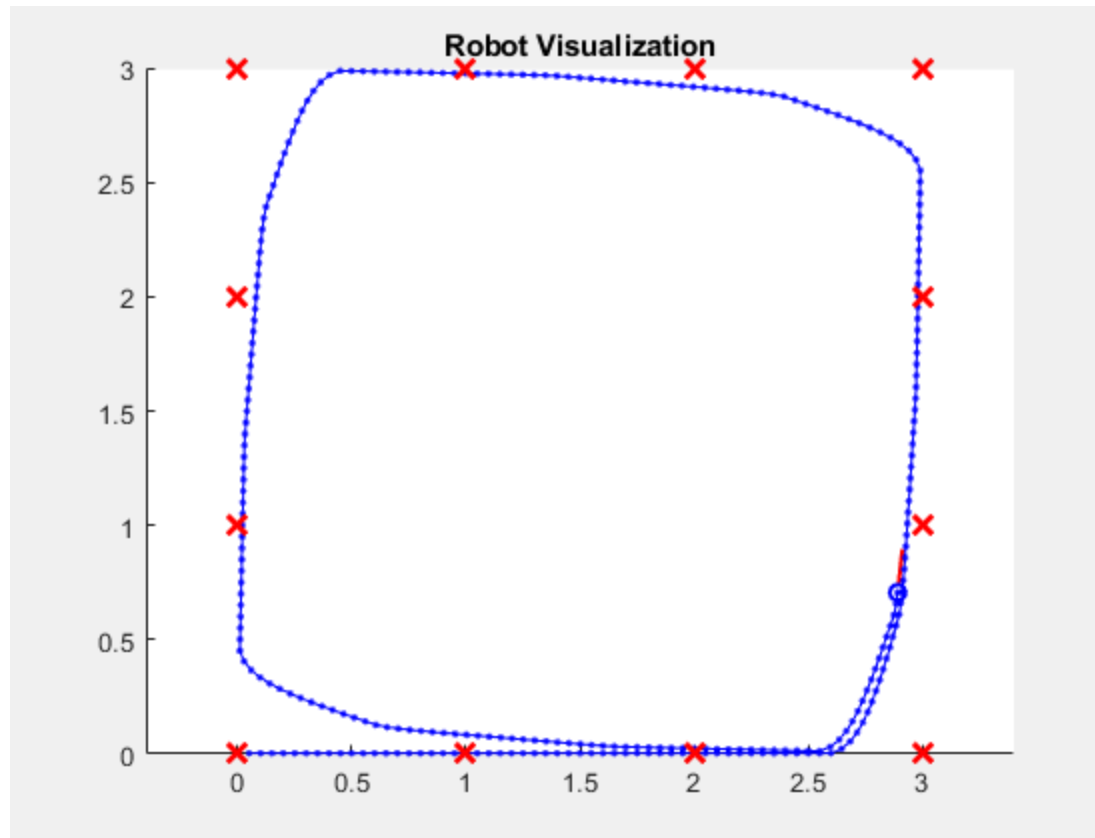
LookaheadDistance = 0.5;  
DesiredLinearVelocity = 0.95;



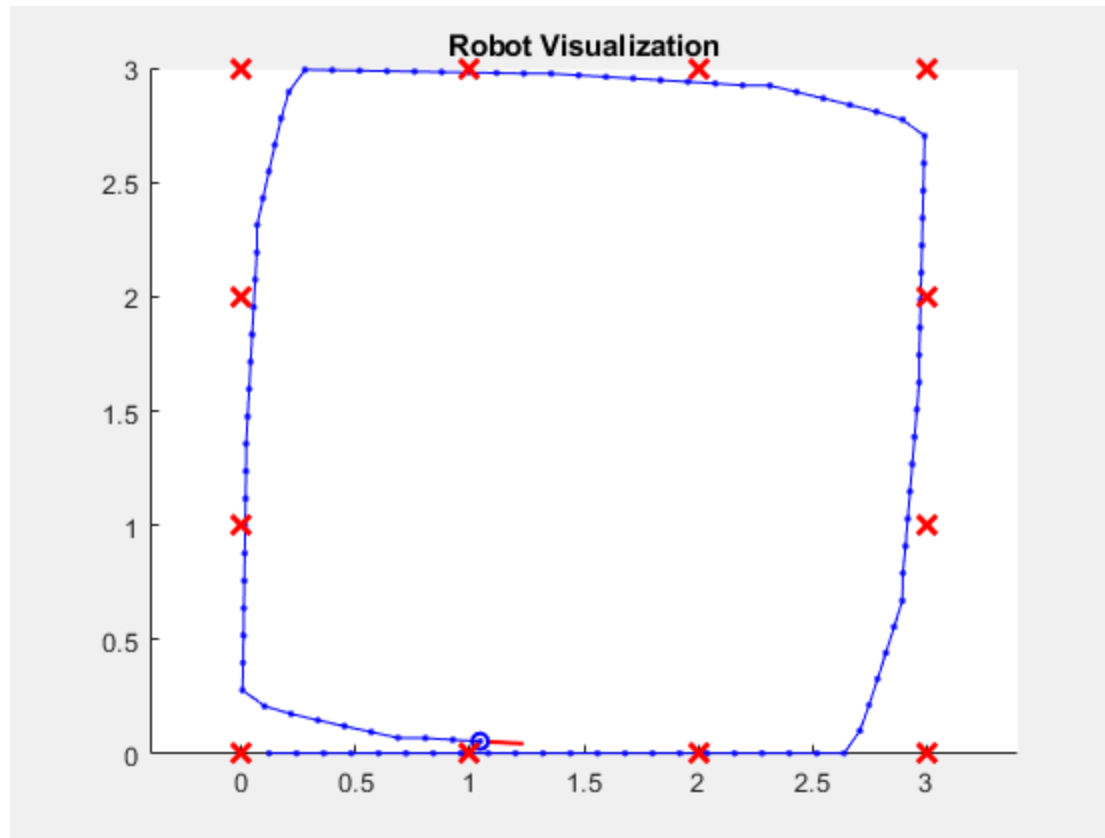
```
LookaheadDistance = 0.6;  
DesiredLinearVelocity = 0.95;
```



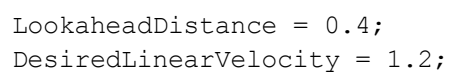
LookaheadDistance = 0.4;  
DesiredLinearVelocity = 0.8;



LookaheadDistance = 0.5;  
DesiredLinearVelocity = 0.5;

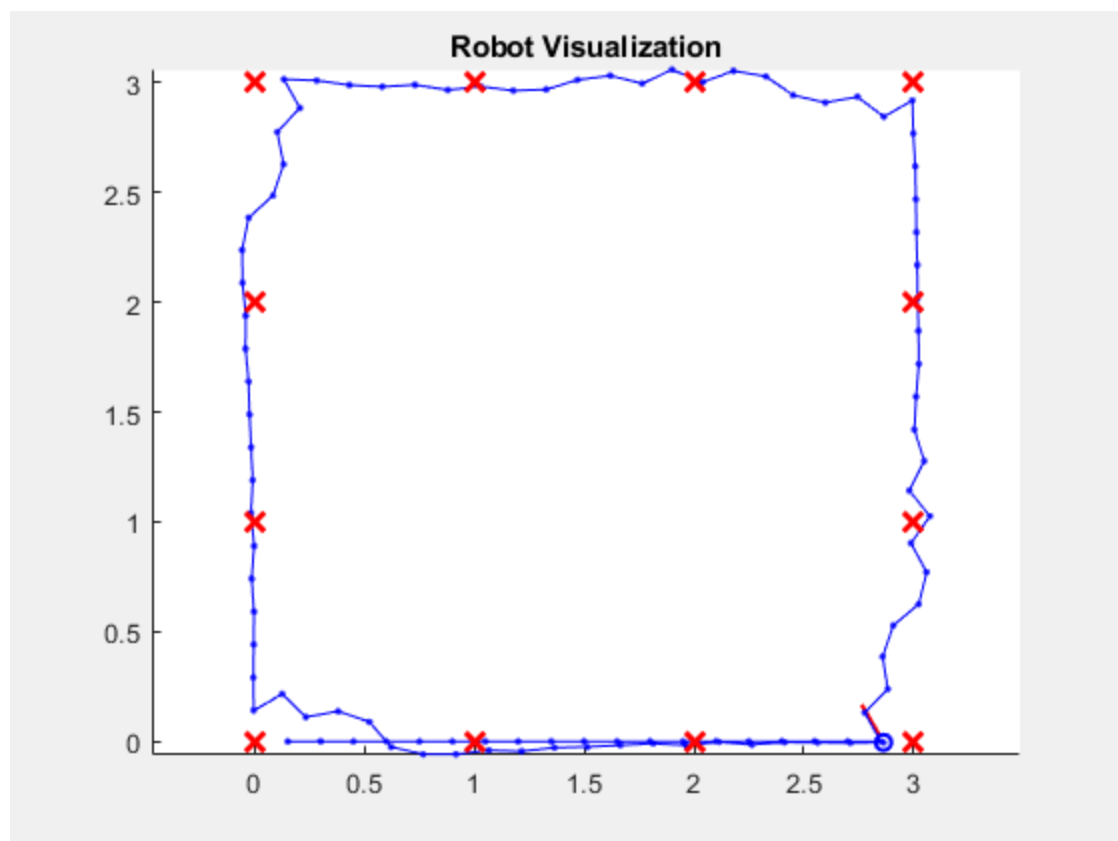


```
LookaheadDistance = 0.5;  
DesiredLinearVelocity = 1.2;
```



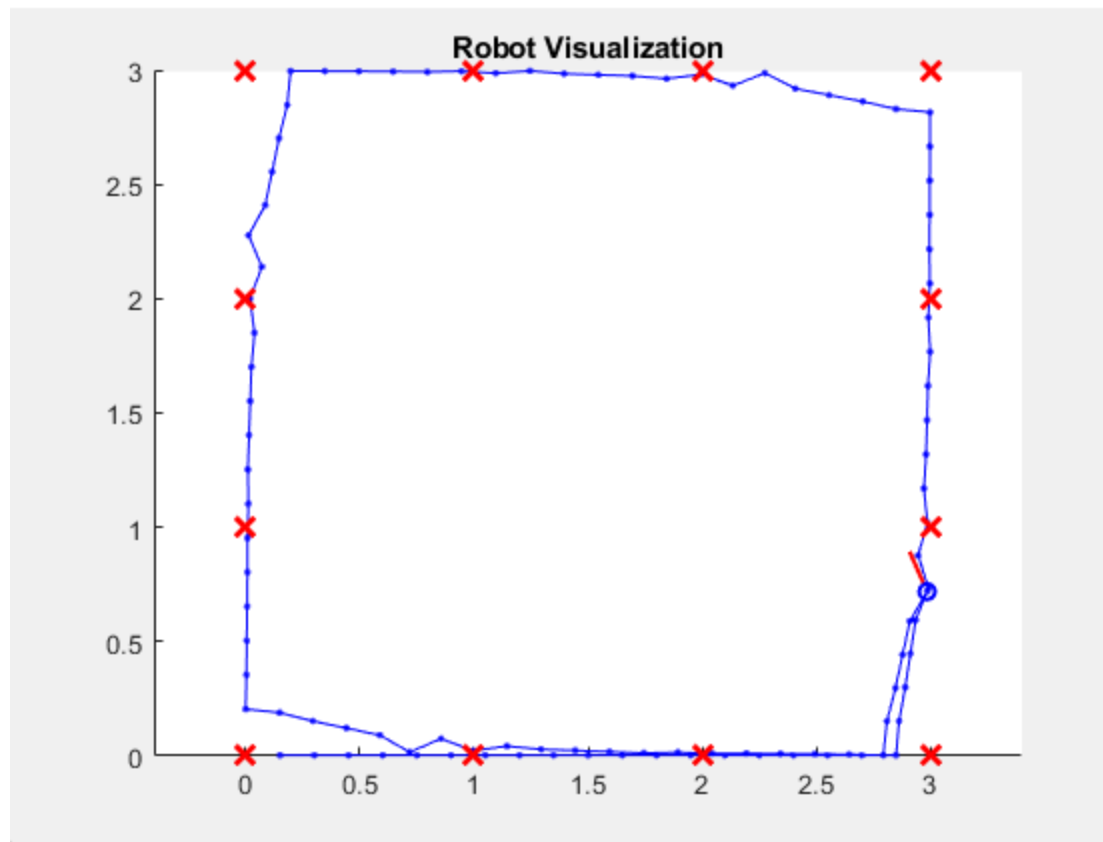
```
LookaheadDistance = 0.4;
```

```
DesiredLinearVelocity = 1.2;
```

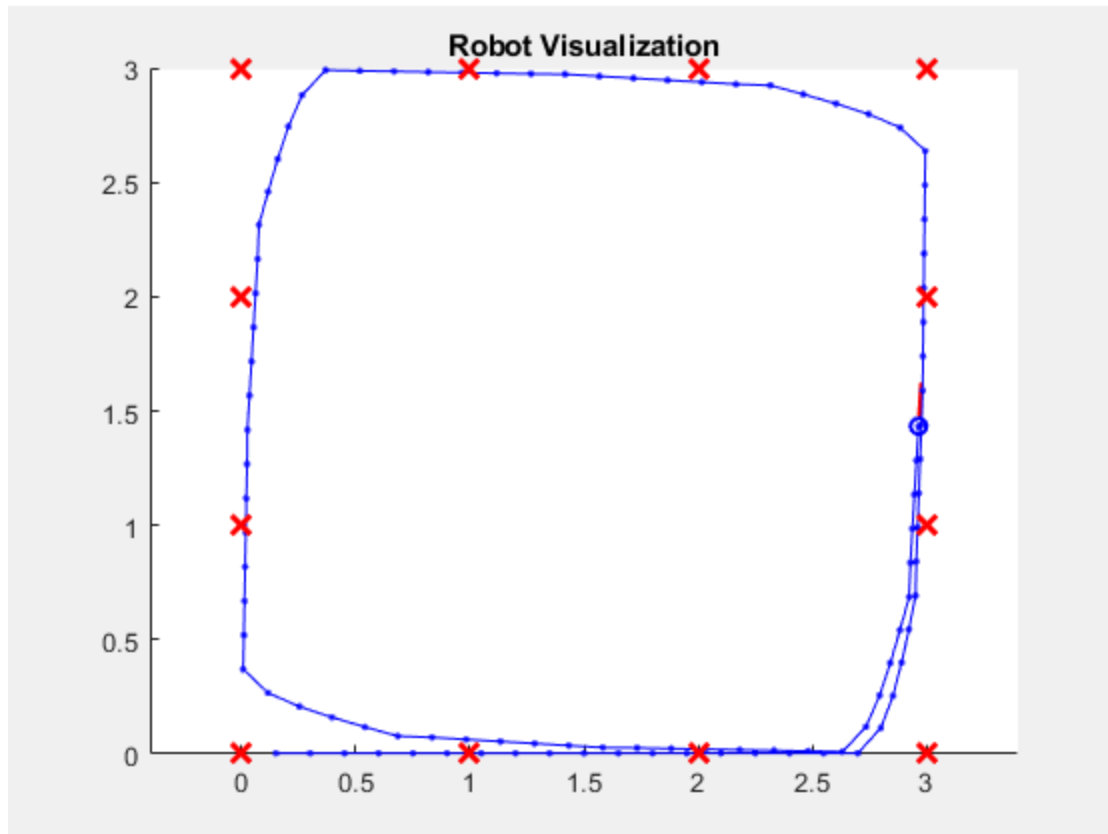


LookaheadDistance = 0.38;  
DesiredLinearVelocity = 1.5;

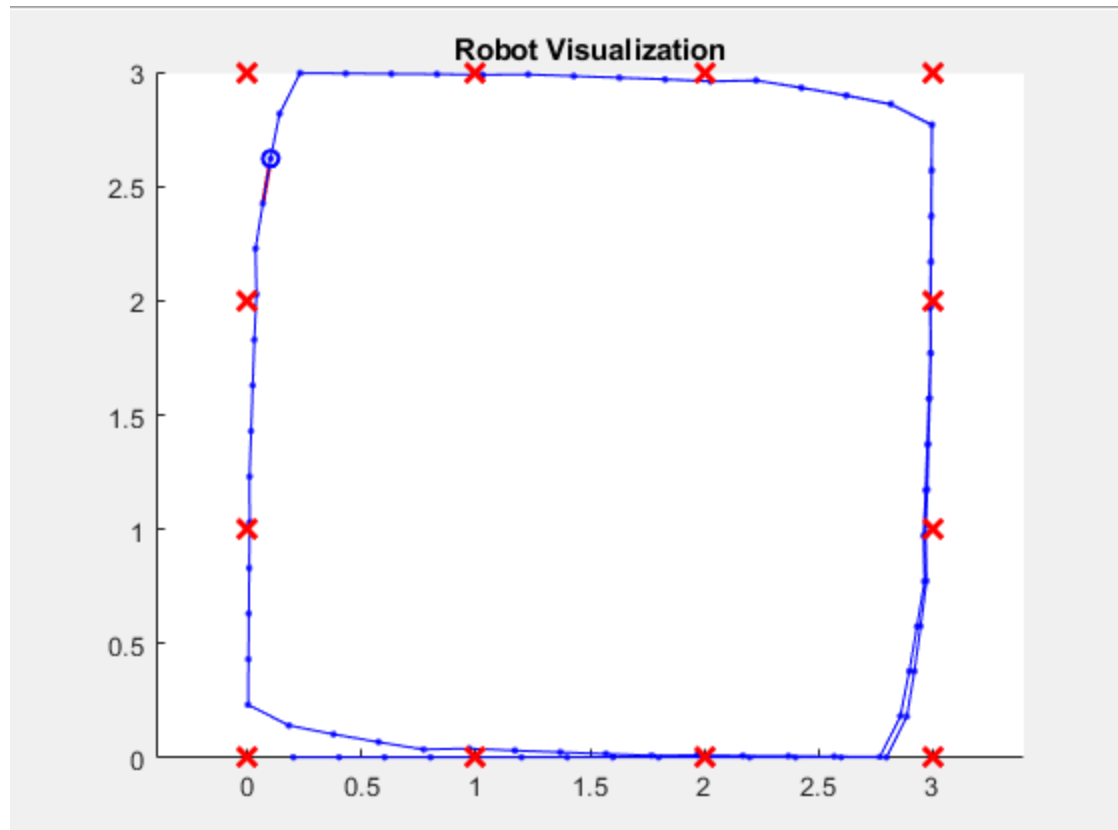




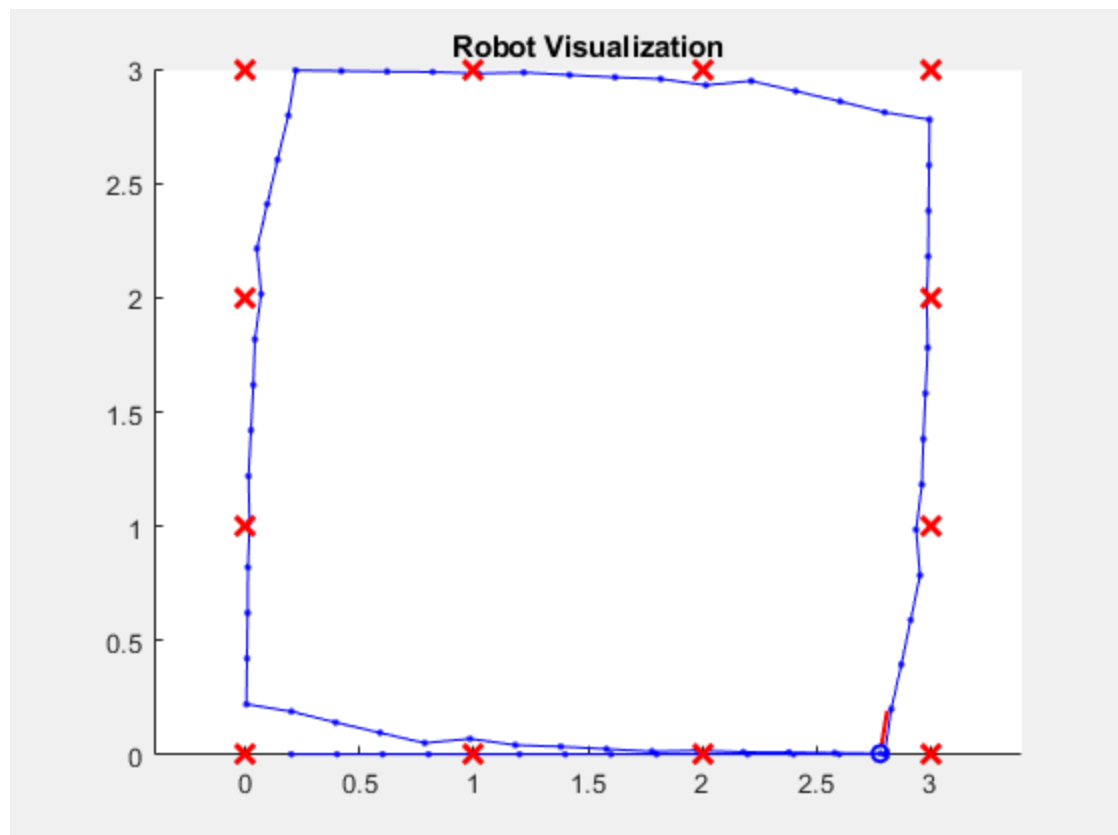
LookaheadDistance = 0.45;  
DesiredLinearVelocity = 1.5;



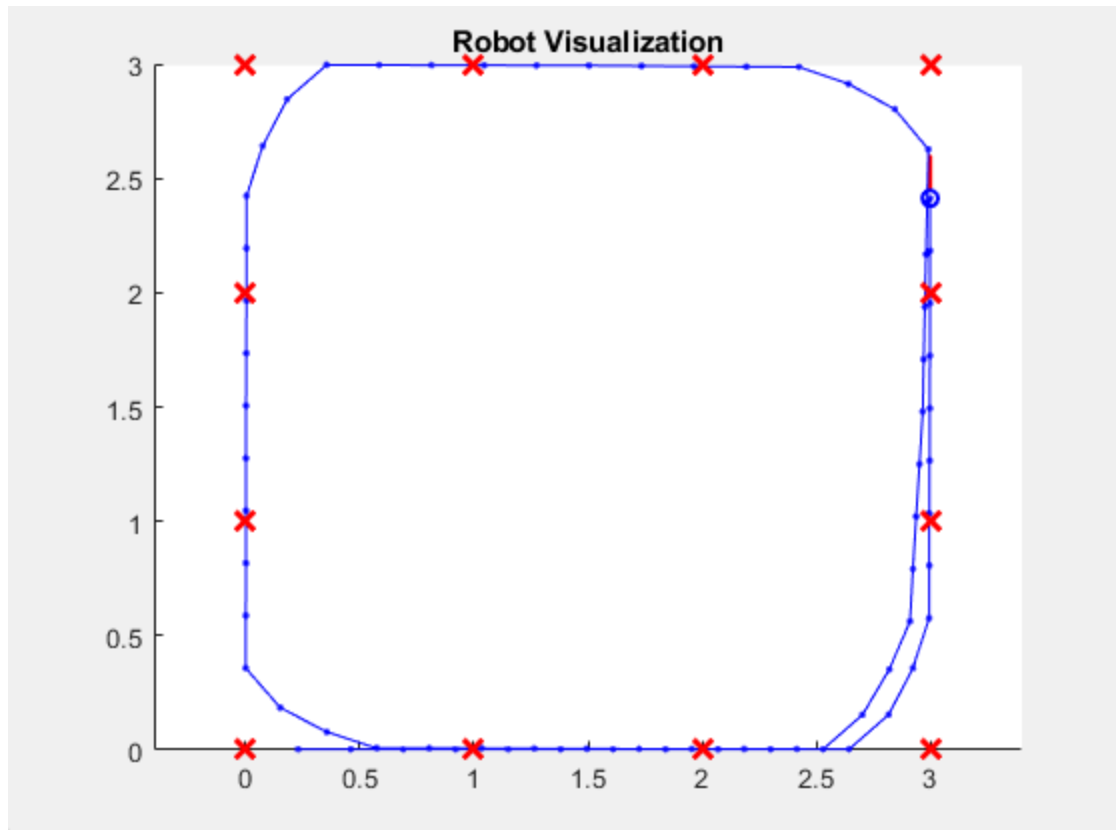
LookaheadDistance = 0.6;  
DesiredLinearVelocity = 1.5;



LookaheadDistance = 0.6;  
DesiredLinearVelocity = 2;



LookaheadDistance = 0.53;  
DesiredLinearVelocity = 2;



```
LookaheadDistance = 0.8;
DesiredLinearVelocity = 2.3;
```

#### Analysis:

By increasing the Lookahead distance we were able to control the oscillations which were resulting in abrupt movement, as increasing the lookahead distance means it can see a better goal at the waypoint which will avoid the oscillations, however increasing it too much was then resulting in early turns, as it was able to turn the points which were resulting in the curve way earlier, resulting in a less rectangular path, as lookahead distance is impacting on the wref,

This was complemented with the linear velocity, to avoid the robot taking turns early, we increased the linear velocity, this ensured that the robot was moving with much higher speed so the curve delaying a bit, and linear velocity also affect the wref, so it made sure that the turns are sharper, not missing the turns due to higher velocities