

#.....calculation of T (whole time of parking maneuver).....

```
def calculate_maneuverTime(vehicle):
```

```
    x=vehicle.get_location().x;
```

```
    y=vehicle.get_location().y;
```

```
    orientAngl=vehicle.get_transform().rotation.yaw;
```

```
    ts=0;
```

```
    cond = True;
```

```
    while cond:
```

```
        for ts in numpy.arange(0,config.T,config.sampling_period):
```

```
            s_angle = steeringAngle(ts);
```

```
            velo = velocity(ts);
```

```
            if(s_angle == 0):
```

```
                orientAngl_lastStep = orientAngl;
```

```
                orientAngl = orientAngl;
```

```
                x = x + (velo * config.sampling_period * math.cos(orientAngl));
```

```
                y = y + (velo * config.sampling_period * math.sin(orientAngl));
```

```
            else:
```

```
                orientAngl_lastStep = orientAngl;
```

```
                orientAngl = orientAngl + (((velo * config.sampling_period)/config.vehicle_length)*math.sin(s_angle));
```

```
                x = x + ((config.vehicle_length / math.tan(s_angle)) * (math.sin(orientAngl) - math.sin(orientAngl_lastStep)));
```

```
                y = y - ((config.vehicle_length / math.tan(s_angle)) * (math.cos(orientAngl) - math.cos(orientAngl_lastStep)));
```

```
    cond=longitudinal_condition(vehicle.get_location().x,x,vehicle.get_location().y,y,vehicle.get_transform().rotation.yaw);
```

```
    print('longitudinal cond:', cond);
```

```
    config.T += config.sampling_period;
```

```
    print('T calc values',config.T);
```

```
    config.T -= config.sampling_period;
```