```
#.....................calculation of phi_max ..................................................
def calculate_max_steeringAng(vehicle):
        x=vehicle.get_location().x;
        y=vehicle.get_location().y;
        orientAngl=vehicle.get_transform().rotation.yaw;
        ts=0;
        cond = False;
        while not cond:
          config.phi_max -= 0.0872665

          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=lateral_condition(vehicle.get_location().x,x,vehicle.get_location().y,y,vehicle.get_transform().rotation.yaw);
          print('max steeringAngle from calculation:',config.phi_max);
```