В этой функции автомобиль рассчитывает собственное ускорение по одному из 6 алгоритмов в зависимости от дистанции до впередиидущего ТС и времени, за которое эту дистанцию необходимо обеспечить.

Public Sub Move()

Dim distance As Double

distance = pControlDistance

Dim deltaDist As Double

Dim deltaSpeed As Double

Dim acs As Double

acs = 0

Dim Tmax As Double

Dim Vmax As Double

Dim Vmin As Double

Dim disc As Double

Dim Vmax1 As Double

Dim Vmax2 As Double

Dim time1 As Double

Dim time2 As Double

pLastX = pX

pLastSpeed = pSpeed

If Not pCarAhead Is Nothing Then

If pRoad Mod 2 = 0 Then

deltaDist = pX - pCarAhead.LastX - pCarAhead.Size - distance

Else

deltaDist = pCarAhead.LastX - pX - pCarAhead.Size - distance

End If

deltaSpeed = pSpeed - pCarAhead.LastSpeed

If deltaDist <> 0 Then

If (deltaDist > 0) Then

If (deltaSpeed / pCarAhead.LastSpeed >= 0) Then

If (deltaSpeed \* pControlTime \* 0.5 >= deltaDist) Then

acs = -(deltaSpeed \* deltaSpeed) / (2 \* deltaDist)

Else

disc = 16 \* deltaDist \* deltaDist - 8 \* pControlTime \* deltaSpeed \* \_

(2 \* deltaDist - pControlTime \* deltaSpeed)

Vmax1 = (4 \* deltaDist - Sqr(disc)) / (4 \* pControlTime)

Vmax2 = (4 \* deltaDist + Sqr(disc)) / (4 \* pControlTime)

If Vmax1 > deltaSpeed Then

Vmax = Vmax1

Else

Vmax = Vmax2

End If

Tmax = ((Vmax - deltaSpeed) \* pControlTime) / (2 \* Vmax - deltaSpeed)

acs = (Vmax - deltaSpeed) / Tmax

End If

Else

disc = 2 \* (4 \* deltaDist - deltaSpeed) \* (2 \* deltaDist - deltaSpeed - \_

2 \* deltaSpeed \* pControlTime)

time1 = (2 \* (deltaSpeed + deltaSpeed \* pControlTime - 2 \* deltaDist) + \_

Sqr(disc)) / (2 \* deltaSpeed)

time2 = (2 \* (deltaSpeed + deltaSpeed \* pControlTime - 2 \* deltaDist) - \_

Sqr(disc)) / (2 \* deltaSpeed)

If time1 < pControlTime Then

Tmax = time1

Else

Tmax = time2

End If

acs = -(deltaSpeed / Tmax)

End If

Else

If (deltaSpeed / pCarAhead.LastSpeed <= 0) Then

If (deltaSpeed \* pControlTime \* 0.5 <= deltaDist) Then

acs = -(deltaSpeed \* deltaSpeed) / (2 \* deltaDist)

Else

disc = 16 \* deltaDist \* deltaDist - 8 \* pControlTime \* deltaSpeed \* \_

(2 \* deltaDist - pControlTime \* deltaSpeed)

Vmax1 = (4 \* deltaDist - Sqr(disc)) / (4 \* pControlTime)

Vmax2 = (4 \* deltaDist + Sqr(disc)) / (4 \* pControlTime)

If Vmax1 < deltaSpeed Then

Vmax = Vmax1

Else

Vmax = Vmax2

End If

Tmax = ((Vmax - deltaSpeed) \* pControlTime) / (2 \* Vmax - deltaSpeed)

acs = (Vmax - deltaSpeed) / Tmax

End If

Else

disc = 2 \* (4 \* deltaDist - deltaSpeed) \* (2 \* deltaDist - deltaSpeed - \_

2 \* deltaSpeed \* pControlTime)

time1 = (2 \* (deltaSpeed + deltaSpeed \* pControlTime - 2 \* deltaDist) + \_

Sqr(disc)) / (2 \* deltaSpeed)

time2 = (2 \* (deltaSpeed + deltaSpeed \* pControlTime - 2 \* deltaDist) - \_

Sqr(disc)) / (2 \* deltaSpeed)

If time1 < pControlTime Then

Tmax = time1

Else

Tmax = time2

End If

If (Abs(deltaSpeed) < 1) Then

pSpeed = pCarAhead.LastSpeed

acs = 0

Else

acs = -(deltaSpeed / Tmax)

End If

End If

End If

pControlTime = pControlTime - (1 / gTick)

End If

End If

If pRoad Mod 2 = 0 Then

pX = pX - pSpeed / gTick - (acs / (gTick \* gTick \* 2))

pSpeed = pSpeed + acs / gTick

Else

pX = pX + pSpeed / gTick + (acs / (gTick \* gTick \* 2))

pSpeed = pSpeed + acs / gTick

End If

End Sub