#define \_\_VT\_AVMCAMGUIDELINE\_CPP\_\_

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Include File\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

#include "VT\_HMI\_Interface.hpp"

#include "VT\_RVC\_Interface.hpp"

#include "VT\_GuidelineRender.hpp"

#include "VT\_GLRenderCommon.hpp"

#include "voy\_ext\_api.hpp"

#include "VT\_MathOpt.hpp"

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Debug Macro Define\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

#define CAMLINE\_TEST (0)

#define DEBUG\_CALINE\_RENDER

#ifdef DEBUG\_CALINE\_RENDER

#include "VT\_Logstore.hpp"

#define BugInfo(FMT, arg... ) BUG\_INFO\_(FMT,##arg)

#define BugWarn(FMT, arg... ) BUG\_WARN\_(FMT,##arg)

#define BugHL(FMT, arg... ) BUG\_HLIGHT\_(FMT,##arg)

#define BugErr(FMT, arg... ) BUG\_ERR\_(FMT,##arg)

#define LogPrintf(FMT, arg...) LOG\_PRINTF\_(FMT,##arg)

#define LogInfo(FMT, arg... ) LOG\_INFO\_(FMT,##arg)

#define LogWarn(FMT, arg... ) LOG\_WARN\_(FMT,##arg)

#define LogErr(FMT, arg... ) LOG\_ERROR\_(FMT,##arg)

#define TmLogInfo(FMT, arg...) TMLOG\_RENDERINFO\_(FMT,##arg)

#else

#define BugInfo(FMT, arg... )

#define BugWarn(FMT, arg... )

#define BugHL(FMT, arg... )

#define BugErr(FMT, arg... )

#define LogPrintf(FMT, arg...)

#define LogInfo(FMT, arg... )

#define LogWarn(FMT, arg... )

#define LogErr(FMT, arg... )

#define TmLogInfo(FMT, arg...)

#endif

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Private Macro Define\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

#define GL\_VERTEX\_ARRAY (0)

#define OUTLINE\_STATIC\_DATA\_COUNT (19)

#define OUTLINE\_DYNAMIC\_N\_DATA\_COUNT (3)

#define OUTLINE\_DYNAMIC\_F\_DATA\_COUNT (OUTLINE\_STATIC\_DATA\_COUNT-OUTLINE\_DYNAMIC\_N\_DATA\_COUNT)

#define WHEEL\_DATA\_COUNT (69)

#define BUMPER\_DATA\_COUNT (44)

#define MAX\_DATA\_COUNT (OUTLINE\_STATIC\_DATA\_COUNT>WHEEL\_DATA\_COUNT?(OUTLINE\_STATIC\_DATA\_COUNT>BUMPER\_DATA\_COUNT?OUTLINE\_STATIC\_DATA\_COUNT:BUMPER\_DATA\_COUNT):(WHEEL\_DATA\_COUNT>BUMPER\_DATA\_COUNT?WHEEL\_DATA\_COUNT:BUMPER\_DATA\_COUNT))

#define CAMLINE\_COORD\_START\_REAROFFSET (0.0)

#define CAMLINE\_COORD\_START\_FRONTOFFSET (-80.0)

#define CAR\_LENGTH\_CAMVIEW (3000) // 待绘制的线段长度

#define CAR\_LENGTH\_ (5405) // 车辆长度

#define CAR\_WIDTH\_CAMVIEW (1950) // 车辆宽度

#define CAR\_OUTLINEWIDTH\_CAMVIEW (CAR\_WIDTH\_CAMVIEW+600.0) // 车辆宽度+后视镜宽度

#define CAR\_REAR\_BUMPERDIS\_CAMVIEW (1000.0) // 前悬长

#define CAR\_FRONT\_BUMPERDIS\_CAMVIEW (1000.0) // 后悬长

#define CAR\_WHEELBASE\_CAMVIEW (3210) // 轮距

#define ANGELVAL\_PER\_RADIAN (0.017453292519943295769236907684886) /\* ANGELVAL\_PER\_RADIAN\*360 == 2\*pi\*r \*/

/\*front wheel angle\*/

// 转弯极限

#define LUT\_StartAngle (-ANGELVAL\_PER\_RADIAN\*90)

#define LUT\_EndAngle (ANGELVAL\_PER\_RADIAN\*90)

/\* 辅助线绘制段数 \*/

#define CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM ((/\*OUTLINE\_STATIC\_DATA\_COUNT-1\*/18)\*2)

#define CAMVIEW\_OUTLINE\_N\_DYNAMIC\_TRI\_NUM ((OUTLINE\_DYNAMIC\_N\_DATA\_COUNT-1)\*2)

#define CAMVIEW\_OUTLINE\_F\_DYNAMIC\_TRI\_NUM ((OUTLINE\_DYNAMIC\_F\_DATA\_COUNT)\*2)

/\* 辅助线绘制段数 \*/

#define CAMVIEW\_WHEELEDGELINE\_TRI\_NUM ((WHEEL\_DATA\_COUNT-1)\*2\*2)

#define CAMVIEW\_WHEELLOCUS\_TRI\_NUM (((WHEEL\_DATA\_COUNT-1)/4)\*2)

#define CAMVIEW\_BUMPERLINE\_TRI\_NUM ((BUMPER\_DATA\_COUNT-1)\*2+8)

#define CAMLINE\_OUTLINE\_WIDTH (50.0)//32

#define CAMLINE\_RVIEWMIRROR\_WIDTH (150.0)

#define CAMLINE\_WHEELOUTSIDE\_WIDTH (15.0)

#define CAMLINE\_WHEEL\_WIDTH (85.0)//255

#define CAMLINE\_WHEELINSIDE\_WIDTH (15.0)

#define CAMLINE\_BUMPERLINE\_WIDTH (25.0)

#define CAMLINE\_FRONTBUMPERLINE\_WIDTH (25.0)//15

#define CARLINE\_BUMPER\_GAP\_WIDTH (20.0)

#define CARLINE\_FRONTBUMPER\_GAP\_WIDTH (115.0)//115

#define CARLINE\_BUMPER\_OUTLINE\_WIDTH (45.0)//25

#define CARLINE\_BUMPER\_OUTLINE\_LENGTH (40.0)

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Private Struct Define\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

typedef enum{

CAMLINE\_REAR,

CAMLINE\_NUM

}enCamLineID;

typedef union{

vtfloat32 Array[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3\*3];

stVTCoord3f VertData[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3];

}unCamLine\_OUTLINE\_L\_static\_VertData;

typedef union{

vtfloat32 Array[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3\*3];

stVTCoord3f VertData[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3];

}unCamLine\_OUTLINE\_R\_static\_VertData;

typedef union{

vtfloat32 Array[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3\*3];

stVTCoord3f VertData[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3];

}unCamLine\_DISLINE\_static\_VertData;

typedef union{

vtfloat32 Array[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3\*3];

stVTCoord3f VertData[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3];

}unCamLine\_OUTLINE\_LN\_dynamic\_VertData;

typedef union{

vtfloat32 Array[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3\*3];

stVTCoord3f VertData[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3];

}unCamLine\_OUTLINE\_RN\_dynamic\_VertData;

typedef union{

vtfloat32 Array[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3\*3];

stVTCoord3f VertData[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3];

}unCamLine\_OUTLINE\_LF\_dynamic\_VertData;

typedef union{

vtfloat32 Array[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3\*3];

stVTCoord3f VertData[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3];

}unCamLine\_OUTLINE\_RF\_dynamic\_VertData;

typedef union{

vtfloat32 Array[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3\*3];

stVTCoord3f VertData[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3];

}unCamLine\_DISLINE1\_dynamic\_VertData;

typedef union{

vtfloat32 Array[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3\*3];

stVTCoord3f VertData[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3];

}unCamLine\_DISLINE2\_dynamic\_VertData;

typedef union{

vtfloat32 Array[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3\*3];

stVTCoord3f VertData[CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM\*3];

}unCamLine\_DISLINE3\_dynamic\_VertData;

typedef enum{

OBJ\_OUTLINE\_L\_STATIC,

OBJ\_OUTLINE\_R\_STATIC,

OBJ\_OUTLINE\_LN\_DYNAMIC,

OBJ\_OUTLINE\_RN\_DYNAMIC,

OBJ\_OUTLINE\_LF\_DYNAMIC,

OBJ\_OUTLINE\_RF\_DYNAMIC,

OBJ\_DISLINE\_STATIC,

OBJ\_DISLINE1\_DYNAMIC,

OBJ\_DISLINE2\_DYNAMIC,

OBJ\_DISLINE3\_DYNAMIC,

OBJ\_NUM //7

}enCamviewLineObj;

typedef enum{

PARA\_OUTLINE1\_L\_STATIC,

PARA\_OUTLINE1\_R\_STATIC,

PARA\_OUTLINE2\_L\_STATIC,

PARA\_OUTLINE2\_R\_STATIC,

PARA\_OUTLINE1\_LN\_DYNAMIC,

PARA\_OUTLINE1\_RN\_DYNAMIC,

PARA\_OUTLINE2\_LN\_DYNAMIC,

PARA\_OUTLINE2\_RN\_DYNAMIC,

PARA\_OUTLINE1\_LF\_DYNAMIC,

PARA\_OUTLINE1\_RF\_DYNAMIC,

PARA\_OUTLINE2\_LF\_DYNAMIC,

PARA\_OUTLINE2\_RF\_DYNAMIC,

PARA\_DISLINE\_N\_STATIC,

PARA\_DISLINE\_F\_STATIC,

PARA\_DISLINE1\_N\_DYNAMIC,

PARA\_DISLINE1\_F\_DYNAMIC,

PARA\_DISLINE2\_N\_DYNAMIC,

PARA\_DISLINE2\_F\_DYNAMIC,

PARA\_DISLINE3\_N\_DYNAMIC,

PARA\_DISLINE3\_F\_DYNAMIC,

PARA\_NUM

}enCamviewLineCoordPara;

typedef struct{

stVTCoord3f \*VertCoordBuf;

vtfloat32 \*VertArray;

GLuint Vbo;

vtint32 TriCnt;

GLfloat Color[4];

GLuint Tex;

}stCamviewLineObj;

typedef struct{

vtint32 CoordCnt;

vtfloat32 Radius;

stVTCoord3f StartPoint;

vtfloat32 RadianstepArray[2][MAX\_DATA\_COUNT];

vector<cv::Point3f> WorldCoord;

vector<cv::Point2f> ImgCoord;

}stCamviewLineCoordPara;

typedef struct

{

vtbool DataUpdateFlag;

vtfloat32 WheelAngle;

stVTCoord3f CircleCenter;

GLint CamlineColorLoc;

stCamviewLineCoordPara Coordpara[PARA\_NUM];

stCamviewLineObj CamlineObj[OBJ\_NUM];

}stCamviewGuideLineData;

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Extern Variable Declare\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Global Variable Declare\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

/\* GLSL配置语言 \*/

static const vtint8 Camline\_UvVert[] =

"#version 300 es \n"

"precision highp float;\n"

"layout(location = 0) in vec4 a\_Vertex; \n "

"void main()\n"

"{\n"

" vec4 positiontem;\n"

" positiontem = vec4(a\_Vertex.x, -a\_Vertex.y, a\_Vertex.z, 1); \n "

" gl\_Position = vec4(positiontem.x, positiontem.y, positiontem.z, positiontem.a);\n"

"}\n";

static const vtint8 Camline\_UvFrag[] =

"#version 300 es \n"

"precision mediump float; \n"

"out vec4 fragColor; \n"

"uniform vec4 variableColor; \n"

"uniform sampler2D myTexture; \n"

"void main() \n"

"{ \n"

" fragColor = vec4(variableColor.rgba); \n "

"} \n";

static Programs CamLine\_UvProg;

static unCamLine\_OUTLINE\_L\_static\_VertData Rear\_OUTLINE\_L\_static\_VertData = {0};

static unCamLine\_OUTLINE\_R\_static\_VertData Rear\_OUTLINE\_R\_static\_VertData = {0};

static unCamLine\_DISLINE\_static\_VertData Rear\_DISLINE\_static\_VertData = {0};

static unCamLine\_OUTLINE\_LN\_dynamic\_VertData Rear\_OUTLINE\_LN\_dynamic\_VertData = {0};

static unCamLine\_OUTLINE\_RN\_dynamic\_VertData Rear\_OUTLINE\_RN\_dynamic\_VertData = {0};

static unCamLine\_OUTLINE\_LF\_dynamic\_VertData Rear\_OUTLINE\_LF\_dynamic\_VertData = {0};

static unCamLine\_OUTLINE\_RF\_dynamic\_VertData Rear\_OUTLINE\_RF\_dynamic\_VertData = {0};

static unCamLine\_DISLINE1\_dynamic\_VertData Rear\_DISLINE1\_dynamic\_VertData = {0};

static unCamLine\_DISLINE2\_dynamic\_VertData Rear\_DISLINE2\_dynamic\_VertData = {0};

static unCamLine\_DISLINE3\_dynamic\_VertData Rear\_DISLINE3\_dynamic\_VertData = {0};

#define TEST\_ (0.040000)

#define GUIDYNOFFSET (0.0)

static stCamviewGuideLineData CamGuideLineData = {

VT\_FALSE,

0.0,

{0.0, 0.0, 0.0},

0,

{

{

OUTLINE\_STATIC\_DATA\_COUNT,

0.0,

{

-CAR\_OUTLINEWIDTH\_CAMVIEW/2,

-(CAR\_WHEELBASE\_CAMVIEW/2 + CAR\_REAR\_BUMPERDIS\_CAMVIEW) + CAMLINE\_COORD\_START\_REAROFFSET,

0.0

},

{

{

TEST\_,

0.140000,

0.200000,

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1.000000,

},

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},

{

OUTLINE\_STATIC\_DATA\_COUNT,

0.0,

{

CAR\_OUTLINEWIDTH\_CAMVIEW/2,

-(CAR\_WHEELBASE\_CAMVIEW/2 + CAR\_REAR\_BUMPERDIS\_CAMVIEW) + CAMLINE\_COORD\_START\_REAROFFSET,

0.0

},

{

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TEST\_,

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},

{

OUTLINE\_STATIC\_DATA\_COUNT,

0.0,

{

(-CAR\_OUTLINEWIDTH\_CAMVIEW/2)+CAMLINE\_OUTLINE\_WIDTH,

-(CAR\_WHEELBASE\_CAMVIEW/2 + CAR\_REAR\_BUMPERDIS\_CAMVIEW) + CAMLINE\_COORD\_START\_REAROFFSET,

0.0

},

{

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},

{

OUTLINE\_STATIC\_DATA\_COUNT,

0.0,

{

(CAR\_OUTLINEWIDTH\_CAMVIEW/2)-CAMLINE\_OUTLINE\_WIDTH,

-(CAR\_WHEELBASE\_CAMVIEW/2 + CAR\_REAR\_BUMPERDIS\_CAMVIEW) + CAMLINE\_COORD\_START\_REAROFFSET,

0.0

},

{

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1.000000,

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},

{

OUTLINE\_STATIC\_DATA\_COUNT,

0.0,

{

-CAR\_OUTLINEWIDTH\_CAMVIEW/2,

-(CAR\_WHEELBASE\_CAMVIEW/2 + CAR\_REAR\_BUMPERDIS\_CAMVIEW) + CAMLINE\_COORD\_START\_REAROFFSET,

0.0

},

{

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TEST\_,

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{

OUTLINE\_STATIC\_DATA\_COUNT,

0.0,

{

CAR\_OUTLINEWIDTH\_CAMVIEW/2,

-(CAR\_WHEELBASE\_CAMVIEW/2 + CAR\_REAR\_BUMPERDIS\_CAMVIEW) + CAMLINE\_COORD\_START\_REAROFFSET,

0.0

},

{

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TEST\_,

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0.940000,

0.970000,

1.000000,

},

},

},

{

OUTLINE\_STATIC\_DATA\_COUNT,

0.0,

{

(-CAR\_OUTLINEWIDTH\_CAMVIEW/2)+CAMLINE\_OUTLINE\_WIDTH,

-(CAR\_WHEELBASE\_CAMVIEW/2 + CAR\_REAR\_BUMPERDIS\_CAMVIEW) + CAMLINE\_COORD\_START\_REAROFFSET,

0.0

},

{

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{

OUTLINE\_STATIC\_DATA\_COUNT,

0.0,

{

(CAR\_OUTLINEWIDTH\_CAMVIEW/2)-CAMLINE\_OUTLINE\_WIDTH,

-(CAR\_WHEELBASE\_CAMVIEW/2 + CAR\_REAR\_BUMPERDIS\_CAMVIEW) + CAMLINE\_COORD\_START\_REAROFFSET,

0.0

},

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{

OUTLINE\_STATIC\_DATA\_COUNT,

0.0,

{

-CAR\_OUTLINEWIDTH\_CAMVIEW/2,

-(CAR\_WHEELBASE\_CAMVIEW/2 + CAR\_REAR\_BUMPERDIS\_CAMVIEW) + CAMLINE\_COORD\_START\_REAROFFSET,

0.0

},

{

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{

OUTLINE\_STATIC\_DATA\_COUNT,

0.0,

{

CAR\_OUTLINEWIDTH\_CAMVIEW/2,

-(CAR\_WHEELBASE\_CAMVIEW/2 + CAR\_REAR\_BUMPERDIS\_CAMVIEW) + CAMLINE\_COORD\_START\_REAROFFSET,

0.0

},

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{

OUTLINE\_STATIC\_DATA\_COUNT,

0.0,

{

(-CAR\_OUTLINEWIDTH\_CAMVIEW/2)+CAMLINE\_OUTLINE\_WIDTH,

-(CAR\_WHEELBASE\_CAMVIEW/2 + CAR\_REAR\_BUMPERDIS\_CAMVIEW) + CAMLINE\_COORD\_START\_REAROFFSET,

0.0

},

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0.810000,

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0.970000,

1.000000,

},

},

},

{

OUTLINE\_STATIC\_DATA\_COUNT,

0.0,

{

(CAR\_OUTLINEWIDTH\_CAMVIEW/2)-CAMLINE\_OUTLINE\_WIDTH,

-(CAR\_WHEELBASE\_CAMVIEW/2 + CAR\_REAR\_BUMPERDIS\_CAMVIEW) + CAMLINE\_COORD\_START\_REAROFFSET,

0.0

},

{

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0.940000,

0.970000,

1.000000,

},

{

TEST\_,

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0.200000,

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0.320000,

0.360000,

0.410000,

0.460000,

0.500000,

0.550000,

0.660000,

0.700000,

0.780000,

0.810000,

0.870000,

0.900000,

0.940000,

0.970000,

1.000000,

},

},

},

{0}, {0},

{0}, {0}, {0}, {0}, {0}, {0},

},

{

{

(stVTCoord3f \*)Rear\_OUTLINE\_L\_static\_VertData.VertData,

(vtfloat32 \*)Rear\_OUTLINE\_L\_static\_VertData.Array,

0,

CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM,

{0.078, 0.46, 0.71, 0.9},

},

{

(stVTCoord3f \*)Rear\_OUTLINE\_R\_static\_VertData.VertData,

(vtfloat32 \*)Rear\_OUTLINE\_R\_static\_VertData.Array,

0,

CAMVIEW\_OUTLINE\_STATIC\_TRI\_NUM,

{0.078, 0.46, 0.71, 0.9},

},

{

(stVTCoord3f \*)Rear\_OUTLINE\_LN\_dynamic\_VertData.VertData,

(vtfloat32 \*)Rear\_OUTLINE\_LN\_dynamic\_VertData.Array,

0,

CAMVIEW\_OUTLINE\_N\_DYNAMIC\_TRI\_NUM,

{0.878, 0.09, 0.113, 0.9},

},

{

(stVTCoord3f \*)Rear\_OUTLINE\_RN\_dynamic\_VertData.VertData,

(vtfloat32 \*)Rear\_OUTLINE\_RN\_dynamic\_VertData.Array,

0,

CAMVIEW\_OUTLINE\_N\_DYNAMIC\_TRI\_NUM,

{0.878, 0.09, 0.113, 0.9},

},

{

(stVTCoord3f \*)Rear\_OUTLINE\_LF\_dynamic\_VertData.VertData,

(vtfloat32 \*)Rear\_OUTLINE\_LF\_dynamic\_VertData.Array,

0,

CAMVIEW\_OUTLINE\_F\_DYNAMIC\_TRI\_NUM,

{0.96, 0.84, 0.2, 0.9},

},

{

(stVTCoord3f \*)Rear\_OUTLINE\_RF\_dynamic\_VertData.VertData,

(vtfloat32 \*)Rear\_OUTLINE\_RF\_dynamic\_VertData.Array,

0,

CAMVIEW\_OUTLINE\_F\_DYNAMIC\_TRI\_NUM,

{0.96, 0.84, 0.2, 0.9},

},

{

(stVTCoord3f \*)Rear\_DISLINE\_static\_VertData.VertData,

(vtfloat32 \*)Rear\_DISLINE\_static\_VertData.Array,

0,

2,

{0.078, 0.46, 0.71, 0.9},

},

{

(stVTCoord3f \*)Rear\_DISLINE1\_dynamic\_VertData.VertData,

(vtfloat32 \*)Rear\_DISLINE1\_dynamic\_VertData.Array,

0,

2,

{0.878, 0.09, 0.113, 0.9},

},

{

(stVTCoord3f \*)Rear\_DISLINE2\_dynamic\_VertData.VertData,

(vtfloat32 \*)Rear\_DISLINE2\_dynamic\_VertData.Array,

0,

2,

{0.96, 0.84, 0.2, 0.9},

},

{

(stVTCoord3f \*)Rear\_DISLINE3\_dynamic\_VertData.VertData,

(vtfloat32 \*)Rear\_DISLINE3\_dynamic\_VertData.Array,

0,

2,

{0.96, 0.84, 0.2, 0.9},

},

},

};

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Function Declare\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

static void RVC\_GetCamline\_EndPoint\_Rear(vector<cv::Point3f>&vec, stVTCoord3f coord, vtfloat32 radian);

static void RVC\_SetWheelAngle\_Rear();

static void RVC\_SetWheelAngle\_Rear();

static void RVC\_GetCamLineCoord\_Rear();

static void RVC\_CoordBufferFill\_Rear();

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Function Define\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

int RVC\_CamGuideLineRenderInit()

{

if(CamLine\_UvProg.loadShaders(Camline\_UvVert, Camline\_UvFrag) == -1)

{

BugInfo("CamLine\_UvProg was not loaded\n");

LogErr("CamLine\_UvProg was not loaded");

return (-1);

}

glBindAttribLocation(CamLine\_UvProg.getHandle(), GL\_VERTEX\_ARRAY, "a\_Vertex");

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*front guideline\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

for(vtint32 ObjID = OBJ\_OUTLINE\_L\_STATIC; ObjID < OBJ\_NUM; ObjID++)

{

glGenBuffers(1, &CamGuideLineData.CamlineObj[ObjID].Vbo);

}

CamGuideLineData.CamlineColorLoc = glGetUniformLocation(CamLine\_UvProg.getHandle(),"variableColor");

return 0;

}

static void RVC\_SetWheelAngle\_Rear()

{

static vtint16 AngleBk = 0x7fff;

if(AngleBk != VTHMI\_GetVhclStrwheelAgl())

{

AngleBk = VTHMI\_GetVhclStrwheelAgl();

CamGuideLineData.WheelAngle = (vtfloat32)(VTHMI\_GetVhclStrwheelAgl()\*ANGELVAL\_PER\_RADIAN/12.90); // 设置车辆传递过来的角度，并转成弧度制

if(CamGuideLineData.WheelAngle < LUT\_StartAngle)

{

CamGuideLineData.WheelAngle = LUT\_StartAngle;

}

else if(CamGuideLineData.WheelAngle > LUT\_EndAngle)

{

CamGuideLineData.WheelAngle = LUT\_EndAngle;

}

CamGuideLineData.DataUpdateFlag = VT\_TRUE;

}

return;

}

static void RVC\_SetCamLinePara\_Rear()

{

if(CamGuideLineData.DataUpdateFlag)

{

if (CamGuideLineData.WheelAngle != 0)

{

/\* 确定车辆运动的圆轨迹方程, 以摄像头为远点建立坐标系， 圆心为（前后轮距\*COT（转向角），后车轮距摄像头1/2处）\*/

if (CamGuideLineData.WheelAngle < 0)

{

/\*get centre coordinate of circle\*/

CamGuideLineData.CircleCenter.x = CAR\_WHEELBASE\_CAMVIEW\*VT\_COT(CamGuideLineData.WheelAngle) - CAR\_OUTLINEWIDTH\_CAMVIEW/2;

CamGuideLineData.CircleCenter.y = -CAR\_WHEELBASE\_CAMVIEW/2;

}

else if (CamGuideLineData.WheelAngle > 0)

{

/\*get centre coordinate of circle\*/

CamGuideLineData.CircleCenter.x = CAR\_WHEELBASE\_CAMVIEW\*VT\_COT(CamGuideLineData.WheelAngle) + CAR\_OUTLINEWIDTH\_CAMVIEW/2;

CamGuideLineData.CircleCenter.y = -CAR\_WHEELBASE\_CAMVIEW/2;

}

// calculate useful information

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_L\_STATIC].Radius = hypot(

/\*wheelRadius\*/fabs(CamGuideLineData.CircleCenter.x + CAR\_OUTLINEWIDTH\_CAMVIEW /2),

CAR\_REAR\_BUMPERDIS\_CAMVIEW);

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_R\_STATIC].Radius = hypot(

/\*wheelRadius\*/fabs(CamGuideLineData.CircleCenter.x - CAR\_OUTLINEWIDTH\_CAMVIEW /2),

CAR\_REAR\_BUMPERDIS\_CAMVIEW);

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_L\_STATIC].Radius = hypot(

/\*wheelRadius\*/fabs(CamGuideLineData.CircleCenter.x + (CAR\_OUTLINEWIDTH\_CAMVIEW /2-CAMLINE\_OUTLINE\_WIDTH)),

CAR\_REAR\_BUMPERDIS\_CAMVIEW);

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_R\_STATIC].Radius = hypot(

/\*wheelRadius\*/fabs(CamGuideLineData.CircleCenter.x - (CAR\_OUTLINEWIDTH\_CAMVIEW /2-CAMLINE\_OUTLINE\_WIDTH)),

CAR\_REAR\_BUMPERDIS\_CAMVIEW);

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].Radius = hypot(

/\*wheelRadius\*/fabs(CamGuideLineData.CircleCenter.x + CAR\_OUTLINEWIDTH\_CAMVIEW /2),

CAR\_REAR\_BUMPERDIS\_CAMVIEW);

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].Radius = hypot(

/\*wheelRadius\*/fabs(CamGuideLineData.CircleCenter.x - CAR\_OUTLINEWIDTH\_CAMVIEW /2),

CAR\_REAR\_BUMPERDIS\_CAMVIEW);

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_LN\_DYNAMIC].Radius = hypot(

/\*wheelRadius\*/fabs(CamGuideLineData.CircleCenter.x + (CAR\_OUTLINEWIDTH\_CAMVIEW /2-CAMLINE\_OUTLINE\_WIDTH)),

CAR\_REAR\_BUMPERDIS\_CAMVIEW);

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_RN\_DYNAMIC].Radius = hypot(

/\*wheelRadius\*/fabs(CamGuideLineData.CircleCenter.x - (CAR\_OUTLINEWIDTH\_CAMVIEW /2-CAMLINE\_OUTLINE\_WIDTH)),

CAR\_REAR\_BUMPERDIS\_CAMVIEW);

}

}

return;

}

static void RVC\_GetCamline\_EndPoint\_Rear(vector<cv::Point3f>&vec, stVTCoord3f coord, vtfloat32 radian)

{

vec.push\_back(cv::Point3f((coord.x - CamGuideLineData.CircleCenter.x) \* VT\_COS(radian) -

(coord.y - CamGuideLineData.CircleCenter.y) \* VT\_SIN(radian) +

CamGuideLineData.CircleCenter.x,

(coord.x - CamGuideLineData.CircleCenter.x) \* VT\_SIN(radian) +

(coord.y - CamGuideLineData.CircleCenter.y) \* VT\_COS(radian) +

CamGuideLineData.CircleCenter.y,

coord.z));

return;

}

static void RVC\_GetCamLineCoord\_Rear()

{

if(CamGuideLineData.DataUpdateFlag)

{

vtuint8 RadianstepArrayID;

/\* 设置半径切换ID，设置车轮角度值 \*/

if(CamGuideLineData.WheelAngle > -0.03273 && CamGuideLineData.WheelAngle < 0.03273)

RadianstepArrayID = 0;

else

RadianstepArrayID = 1;

for(vtint32 CoordParaID = PARA\_OUTLINE1\_L\_STATIC; CoordParaID <= PARA\_OUTLINE2\_RN\_DYNAMIC; CoordParaID++)

{

CamGuideLineData.Coordpara[CoordParaID].WorldCoord.clear();

}

for(vtint32 CoordParaID = PARA\_OUTLINE1\_L\_STATIC; CoordParaID <= PARA\_OUTLINE2\_R\_STATIC; CoordParaID++)

{

for(vtint32 coordID = 0; coordID < CamGuideLineData.Coordpara[CoordParaID].CoordCnt; coordID++)

{

CamGuideLineData.Coordpara[CoordParaID].WorldCoord.push\_back(cv::Point3f(

CamGuideLineData.Coordpara[CoordParaID].StartPoint.x,

CamGuideLineData.Coordpara[CoordParaID].StartPoint.y - CAR\_LENGTH\_CAMVIEW\*CamGuideLineData.Coordpara[CoordParaID].RadianstepArray[RadianstepArrayID][coordID], 0.0));

}

}

if(CamGuideLineData.WheelAngle > 0)

{

for(vtint32 CoordParaID = PARA\_OUTLINE1\_LN\_DYNAMIC; CoordParaID <= PARA\_OUTLINE2\_RN\_DYNAMIC; CoordParaID++)

{

for(vtint32 coordID = 0; coordID < CamGuideLineData.Coordpara[CoordParaID].CoordCnt; coordID++)

{

RVC\_GetCamline\_EndPoint\_Rear(CamGuideLineData.Coordpara[CoordParaID].WorldCoord,

CamGuideLineData.Coordpara[CoordParaID].StartPoint,

CAR\_LENGTH\_CAMVIEW\*CamGuideLineData.Coordpara[CoordParaID].RadianstepArray[RadianstepArrayID][coordID]/CamGuideLineData.Coordpara[CoordParaID].Radius);

}

}

}

else if(CamGuideLineData.WheelAngle < 0)

{

for(vtint32 CoordParaID = PARA\_OUTLINE1\_LN\_DYNAMIC; CoordParaID <= PARA\_OUTLINE2\_RN\_DYNAMIC; CoordParaID++)

{

for(vtint32 coordID = 0; coordID < CamGuideLineData.Coordpara[CoordParaID].CoordCnt; coordID++)

{

RVC\_GetCamline\_EndPoint\_Rear(CamGuideLineData.Coordpara[CoordParaID].WorldCoord,

CamGuideLineData.Coordpara[CoordParaID].StartPoint,

-CAR\_LENGTH\_CAMVIEW\*CamGuideLineData.Coordpara[CoordParaID].RadianstepArray[RadianstepArrayID][coordID]/CamGuideLineData.Coordpara[CoordParaID].Radius);

}

}

}

else

{

for(vtint32 CoordParaID = PARA\_OUTLINE1\_LN\_DYNAMIC; CoordParaID <= PARA\_OUTLINE2\_RN\_DYNAMIC; CoordParaID++)

{

for(vtint32 coordID = 0; coordID < CamGuideLineData.Coordpara[CoordParaID].CoordCnt; coordID++)

{

CamGuideLineData.Coordpara[CoordParaID].WorldCoord.push\_back(cv::Point3f(

CamGuideLineData.Coordpara[CoordParaID].StartPoint.x,

CamGuideLineData.Coordpara[CoordParaID].StartPoint.y - CAR\_LENGTH\_CAMVIEW\*CamGuideLineData.Coordpara[CoordParaID].RadianstepArray[RadianstepArrayID][coordID], 0.0));

}

}

}

}

return;

}

void word2Image(vector<cv::Point3f> &word\_points, vector<cv::Point2f> &Image\_points)

{

Image\_points.clear();

/\* 摄像头外参中的R矩阵 \*/

double rvec\_out\_elem[3] = { 2.412128291689742,-0.01168541669457169,0.01873900467825865 } ;

cv::Mat rvec\_out(3, 1, CV\_64FC1, rvec\_out\_elem);

/\* 摄像头外参中的T矩阵 \*/

double tvec\_out\_elem[3] = { -97.45724049637502,795.9834110426862,930.0637431738708 };

cv::Mat tvec\_out(3, 1, CV\_64FC1, tvec\_out\_elem);

vector<cv::Point2f> p2d\_fish;

vector<cv::Point3f> transfer\_word;

float word\_x = 0.0, word\_y = 0.0, word\_z = 0.0;

/\* 将Y轴偏移半个车身长度 \*/

for(int i = 0; i < word\_points.size(); i++)

{

word\_x = -word\_points.at(i).x;

word\_y = -word\_points.at(i).y - (CAR\_LENGTH\_/2);

word\_z = 0.0;

transfer\_word.push\_back((cv::Point3f){word\_x, word\_y, word\_z});

}

float x = 0.0, y = 0.0;

/\* 将世界中的点位坐标映射成图像坐标 \*/

projectPoints2Fish(transfer\_word, rvec\_out, tvec\_out, p2d\_fish);

/\* 转换坐标系，以摄像头为坐标原点 \*/

for(int i = 0; i < p2d\_fish.size(); i++)

{

x = CAM\_VIEW\_WIDTH - p2d\_fish.at(i).x;

y = p2d\_fish.at(i).y;

x = (x - CAM\_VIEW\_WIDTH/2) / (CAM\_VIEW\_WIDTH/2);

y = (CAM\_VIEW\_HEIGHT/2 - y) / (CAM\_VIEW\_HEIGHT/2);

Image\_points.push\_back(cv::Point2f{x, y});

}

return;

}

static void RVC\_CoordConvert\_Rear()

{

/\* 每一条线段都进行运算 \*/

if(CamGuideLineData.DataUpdateFlag)

{

for(vtint32 CoordParaID = PARA\_OUTLINE1\_L\_STATIC; CoordParaID <= PARA\_OUTLINE2\_RN\_DYNAMIC; CoordParaID++)

{

CamGuideLineData.Coordpara[CoordParaID].ImgCoord.clear();

word2Image(CamGuideLineData.Coordpara[CoordParaID].WorldCoord, CamGuideLineData.Coordpara[CoordParaID].ImgCoord);

}

}

return;

}

static void RVC\_CoordBufferFill\_Rear()

{

if(CamGuideLineData.DataUpdateFlag)

{

/\* 将计算过后的数据填充到待渲染的目标中 \*/

/\* 静态辅助线填充 \*/

for(vtint32 ImgVecCoordID = 0, VertCoordID = 0; ImgVecCoordID < OUTLINE\_STATIC\_DATA\_COUNT - 1 /\*4\*/; ImgVecCoordID++,VertCoordID+=6)

{

/\* 点位顺序 \*/

/\* 1,3 ---- 4 \*/

/\* |\ | \*/

/\* | \ | \*/

/\* | \ | \*/

/\* 0 ---- 2,5\*/

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_L\_STATIC].VertCoordBuf[VertCoordID+0].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_L\_STATIC].ImgCoord[ImgVecCoordID].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_L\_STATIC].VertCoordBuf[VertCoordID+0].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_L\_STATIC].ImgCoord[ImgVecCoordID].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_L\_STATIC].VertCoordBuf[VertCoordID+0].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_L\_STATIC].VertCoordBuf[VertCoordID+1].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_L\_STATIC].ImgCoord[ImgVecCoordID+1].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_L\_STATIC].VertCoordBuf[VertCoordID+1].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_L\_STATIC].ImgCoord[ImgVecCoordID+1].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_L\_STATIC].VertCoordBuf[VertCoordID+1].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_L\_STATIC].VertCoordBuf[VertCoordID+2].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_L\_STATIC].ImgCoord[ImgVecCoordID].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_L\_STATIC].VertCoordBuf[VertCoordID+2].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_L\_STATIC].ImgCoord[ImgVecCoordID].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_L\_STATIC].VertCoordBuf[VertCoordID+2].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_L\_STATIC].VertCoordBuf[VertCoordID+3].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_L\_STATIC].ImgCoord[ImgVecCoordID+1].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_L\_STATIC].VertCoordBuf[VertCoordID+3].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_L\_STATIC].ImgCoord[ImgVecCoordID+1].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_L\_STATIC].VertCoordBuf[VertCoordID+3].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_L\_STATIC].VertCoordBuf[VertCoordID+4].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_L\_STATIC].ImgCoord[ImgVecCoordID+1].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_L\_STATIC].VertCoordBuf[VertCoordID+4].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_L\_STATIC].ImgCoord[ImgVecCoordID+1].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_L\_STATIC].VertCoordBuf[VertCoordID+4].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_L\_STATIC].VertCoordBuf[VertCoordID+5].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_L\_STATIC].ImgCoord[ImgVecCoordID].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_L\_STATIC].VertCoordBuf[VertCoordID+5].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_L\_STATIC].ImgCoord[ImgVecCoordID].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_L\_STATIC].VertCoordBuf[VertCoordID+5].z = 0.0;

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_R\_STATIC].VertCoordBuf[VertCoordID+0].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_R\_STATIC].ImgCoord[ImgVecCoordID].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_R\_STATIC].VertCoordBuf[VertCoordID+0].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_R\_STATIC].ImgCoord[ImgVecCoordID].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_R\_STATIC].VertCoordBuf[VertCoordID+0].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_R\_STATIC].VertCoordBuf[VertCoordID+1].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_R\_STATIC].ImgCoord[ImgVecCoordID+1].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_R\_STATIC].VertCoordBuf[VertCoordID+1].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_R\_STATIC].ImgCoord[ImgVecCoordID+1].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_R\_STATIC].VertCoordBuf[VertCoordID+1].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_R\_STATIC].VertCoordBuf[VertCoordID+2].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_R\_STATIC].ImgCoord[ImgVecCoordID].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_R\_STATIC].VertCoordBuf[VertCoordID+2].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_R\_STATIC].ImgCoord[ImgVecCoordID].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_R\_STATIC].VertCoordBuf[VertCoordID+2].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_R\_STATIC].VertCoordBuf[VertCoordID+3].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_R\_STATIC].ImgCoord[ImgVecCoordID+1].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_R\_STATIC].VertCoordBuf[VertCoordID+3].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_R\_STATIC].ImgCoord[ImgVecCoordID+1].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_R\_STATIC].VertCoordBuf[VertCoordID+3].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_R\_STATIC].VertCoordBuf[VertCoordID+4].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_R\_STATIC].ImgCoord[ImgVecCoordID+1].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_R\_STATIC].VertCoordBuf[VertCoordID+4].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_R\_STATIC].ImgCoord[ImgVecCoordID+1].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_R\_STATIC].VertCoordBuf[VertCoordID+4].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_R\_STATIC].VertCoordBuf[VertCoordID+5].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_R\_STATIC].ImgCoord[ImgVecCoordID].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_R\_STATIC].VertCoordBuf[VertCoordID+5].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_R\_STATIC].ImgCoord[ImgVecCoordID].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_R\_STATIC].VertCoordBuf[VertCoordID+5].z = 0.0;

}

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

CamGuideLineData.CamlineObj[OBJ\_DISLINE\_STATIC].VertCoordBuf[0].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_L\_STATIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-2].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE\_STATIC].VertCoordBuf[0].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_L\_STATIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-2].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE\_STATIC].VertCoordBuf[0].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE\_STATIC].VertCoordBuf[1].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_L\_STATIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-1].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE\_STATIC].VertCoordBuf[1].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_L\_STATIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-1].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE\_STATIC].VertCoordBuf[1].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE\_STATIC].VertCoordBuf[2].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_R\_STATIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-2].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE\_STATIC].VertCoordBuf[2].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_R\_STATIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-2].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE\_STATIC].VertCoordBuf[2].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE\_STATIC].VertCoordBuf[3].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_L\_STATIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-1].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE\_STATIC].VertCoordBuf[3].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_L\_STATIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-1].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE\_STATIC].VertCoordBuf[3].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE\_STATIC].VertCoordBuf[4].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_R\_STATIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-1].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE\_STATIC].VertCoordBuf[4].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_R\_STATIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-1].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE\_STATIC].VertCoordBuf[4].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE\_STATIC].VertCoordBuf[5].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_R\_STATIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-2].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE\_STATIC].VertCoordBuf[5].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_R\_STATIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-2].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE\_STATIC].VertCoordBuf[5].z = 0.0;

for(vtint32 ImgVecCoordID = 0, VertCoordID = 0; ImgVecCoordID < OUTLINE\_STATIC\_DATA\_COUNT - 1 /\*4\*/; ImgVecCoordID++,VertCoordID+=6)

{

if(ImgVecCoordID < OUTLINE\_DYNAMIC\_N\_DATA\_COUNT-1)

{

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LN\_DYNAMIC].VertCoordBuf[VertCoordID+0].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LN\_DYNAMIC].VertCoordBuf[VertCoordID+0].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LN\_DYNAMIC].VertCoordBuf[VertCoordID+0].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LN\_DYNAMIC].VertCoordBuf[VertCoordID+1].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LN\_DYNAMIC].VertCoordBuf[VertCoordID+1].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LN\_DYNAMIC].VertCoordBuf[VertCoordID+1].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LN\_DYNAMIC].VertCoordBuf[VertCoordID+2].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LN\_DYNAMIC].VertCoordBuf[VertCoordID+2].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LN\_DYNAMIC].VertCoordBuf[VertCoordID+2].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LN\_DYNAMIC].VertCoordBuf[VertCoordID+3].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LN\_DYNAMIC].VertCoordBuf[VertCoordID+3].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LN\_DYNAMIC].VertCoordBuf[VertCoordID+3].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LN\_DYNAMIC].VertCoordBuf[VertCoordID+4].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LN\_DYNAMIC].VertCoordBuf[VertCoordID+4].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LN\_DYNAMIC].VertCoordBuf[VertCoordID+4].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LN\_DYNAMIC].VertCoordBuf[VertCoordID+5].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LN\_DYNAMIC].VertCoordBuf[VertCoordID+5].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LN\_DYNAMIC].VertCoordBuf[VertCoordID+5].z = 0.0;

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RN\_DYNAMIC].VertCoordBuf[VertCoordID+0].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RN\_DYNAMIC].VertCoordBuf[VertCoordID+0].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RN\_DYNAMIC].VertCoordBuf[VertCoordID+0].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RN\_DYNAMIC].VertCoordBuf[VertCoordID+1].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RN\_DYNAMIC].VertCoordBuf[VertCoordID+1].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RN\_DYNAMIC].VertCoordBuf[VertCoordID+1].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RN\_DYNAMIC].VertCoordBuf[VertCoordID+2].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RN\_DYNAMIC].VertCoordBuf[VertCoordID+2].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RN\_DYNAMIC].VertCoordBuf[VertCoordID+2].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RN\_DYNAMIC].VertCoordBuf[VertCoordID+3].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RN\_DYNAMIC].VertCoordBuf[VertCoordID+3].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RN\_DYNAMIC].VertCoordBuf[VertCoordID+3].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RN\_DYNAMIC].VertCoordBuf[VertCoordID+4].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RN\_DYNAMIC].VertCoordBuf[VertCoordID+4].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RN\_DYNAMIC].VertCoordBuf[VertCoordID+4].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RN\_DYNAMIC].VertCoordBuf[VertCoordID+5].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RN\_DYNAMIC].VertCoordBuf[VertCoordID+5].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RN\_DYNAMIC].VertCoordBuf[VertCoordID+5].z = 0.0;

}

else

{

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LF\_DYNAMIC].VertCoordBuf[VertCoordID-12+0].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LF\_DYNAMIC].VertCoordBuf[VertCoordID-12+0].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LF\_DYNAMIC].VertCoordBuf[VertCoordID-12+0].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LF\_DYNAMIC].VertCoordBuf[VertCoordID-12+1].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LF\_DYNAMIC].VertCoordBuf[VertCoordID-12+1].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LF\_DYNAMIC].VertCoordBuf[VertCoordID-12+1].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LF\_DYNAMIC].VertCoordBuf[VertCoordID-12+2].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LF\_DYNAMIC].VertCoordBuf[VertCoordID-12+2].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LF\_DYNAMIC].VertCoordBuf[VertCoordID-12+2].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LF\_DYNAMIC].VertCoordBuf[VertCoordID-12+3].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LF\_DYNAMIC].VertCoordBuf[VertCoordID-12+3].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LF\_DYNAMIC].VertCoordBuf[VertCoordID-12+3].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LF\_DYNAMIC].VertCoordBuf[VertCoordID-12+4].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LF\_DYNAMIC].VertCoordBuf[VertCoordID-12+4].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LF\_DYNAMIC].VertCoordBuf[VertCoordID-12+4].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LF\_DYNAMIC].VertCoordBuf[VertCoordID-12+5].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LF\_DYNAMIC].VertCoordBuf[VertCoordID-12+5].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_LN\_DYNAMIC].ImgCoord[ImgVecCoordID].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_LF\_DYNAMIC].VertCoordBuf[VertCoordID-12+5].z = 0.0;

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RF\_DYNAMIC].VertCoordBuf[VertCoordID-12+0].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RF\_DYNAMIC].VertCoordBuf[VertCoordID-12+0].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RF\_DYNAMIC].VertCoordBuf[VertCoordID-12+0].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RF\_DYNAMIC].VertCoordBuf[VertCoordID-12+1].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RF\_DYNAMIC].VertCoordBuf[VertCoordID-12+1].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RF\_DYNAMIC].VertCoordBuf[VertCoordID-12+1].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RF\_DYNAMIC].VertCoordBuf[VertCoordID-12+2].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RF\_DYNAMIC].VertCoordBuf[VertCoordID-12+2].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RF\_DYNAMIC].VertCoordBuf[VertCoordID-12+2].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RF\_DYNAMIC].VertCoordBuf[VertCoordID-12+3].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RF\_DYNAMIC].VertCoordBuf[VertCoordID-12+3].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE2\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RF\_DYNAMIC].VertCoordBuf[VertCoordID-12+3].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RF\_DYNAMIC].VertCoordBuf[VertCoordID-12+4].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RF\_DYNAMIC].VertCoordBuf[VertCoordID-12+4].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID+1].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RF\_DYNAMIC].VertCoordBuf[VertCoordID-12+4].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RF\_DYNAMIC].VertCoordBuf[VertCoordID-12+5].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID].x;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RF\_DYNAMIC].VertCoordBuf[VertCoordID-12+5].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[ImgVecCoordID].y;

CamGuideLineData.CamlineObj[OBJ\_OUTLINE\_RF\_DYNAMIC].VertCoordBuf[VertCoordID-12+5].z = 0.0;

}

}

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

CamGuideLineData.CamlineObj[OBJ\_DISLINE1\_DYNAMIC].VertCoordBuf[0].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT-2].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE1\_DYNAMIC].VertCoordBuf[0].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT-2].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE1\_DYNAMIC].VertCoordBuf[0].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE1\_DYNAMIC].VertCoordBuf[1].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT-1].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE1\_DYNAMIC].VertCoordBuf[1].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT-1].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE1\_DYNAMIC].VertCoordBuf[1].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE1\_DYNAMIC].VertCoordBuf[2].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT-2].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE1\_DYNAMIC].VertCoordBuf[2].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT-2].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE1\_DYNAMIC].VertCoordBuf[2].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE1\_DYNAMIC].VertCoordBuf[3].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT-1].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE1\_DYNAMIC].VertCoordBuf[3].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT-1].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE1\_DYNAMIC].VertCoordBuf[3].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE1\_DYNAMIC].VertCoordBuf[4].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT-1].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE1\_DYNAMIC].VertCoordBuf[4].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT-1].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE1\_DYNAMIC].VertCoordBuf[4].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE1\_DYNAMIC].VertCoordBuf[5].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT-2].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE1\_DYNAMIC].VertCoordBuf[5].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT-2].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE1\_DYNAMIC].VertCoordBuf[5].z = 0.0;

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

CamGuideLineData.CamlineObj[OBJ\_DISLINE2\_DYNAMIC].VertCoordBuf[0].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT+1].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE2\_DYNAMIC].VertCoordBuf[0].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT+1].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE2\_DYNAMIC].VertCoordBuf[0].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE2\_DYNAMIC].VertCoordBuf[1].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT+2].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE2\_DYNAMIC].VertCoordBuf[1].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT+2].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE2\_DYNAMIC].VertCoordBuf[1].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE2\_DYNAMIC].VertCoordBuf[2].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT+1].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE2\_DYNAMIC].VertCoordBuf[2].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT+1].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE2\_DYNAMIC].VertCoordBuf[2].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE2\_DYNAMIC].VertCoordBuf[3].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT+2].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE2\_DYNAMIC].VertCoordBuf[3].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT+2].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE2\_DYNAMIC].VertCoordBuf[3].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE2\_DYNAMIC].VertCoordBuf[4].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT+2].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE2\_DYNAMIC].VertCoordBuf[4].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT+2].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE2\_DYNAMIC].VertCoordBuf[4].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE2\_DYNAMIC].VertCoordBuf[5].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT+1].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE2\_DYNAMIC].VertCoordBuf[5].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[OUTLINE\_DYNAMIC\_N\_DATA\_COUNT+1].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE2\_DYNAMIC].VertCoordBuf[5].z = 0.0;

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CamGuideLineData.CamlineObj[OBJ\_DISLINE3\_DYNAMIC].VertCoordBuf[0].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-2].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE3\_DYNAMIC].VertCoordBuf[0].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-2].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE3\_DYNAMIC].VertCoordBuf[0].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE3\_DYNAMIC].VertCoordBuf[1].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-1].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE3\_DYNAMIC].VertCoordBuf[1].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-1].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE3\_DYNAMIC].VertCoordBuf[1].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE3\_DYNAMIC].VertCoordBuf[2].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-2].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE3\_DYNAMIC].VertCoordBuf[2].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-2].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE3\_DYNAMIC].VertCoordBuf[2].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE3\_DYNAMIC].VertCoordBuf[3].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-1].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE3\_DYNAMIC].VertCoordBuf[3].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_LN\_DYNAMIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-1].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE3\_DYNAMIC].VertCoordBuf[3].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE3\_DYNAMIC].VertCoordBuf[4].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-1].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE3\_DYNAMIC].VertCoordBuf[4].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-1].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE3\_DYNAMIC].VertCoordBuf[4].z = 0.0;

CamGuideLineData.CamlineObj[OBJ\_DISLINE3\_DYNAMIC].VertCoordBuf[5].x =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-2].x;

CamGuideLineData.CamlineObj[OBJ\_DISLINE3\_DYNAMIC].VertCoordBuf[5].y =

CamGuideLineData.Coordpara[PARA\_OUTLINE1\_RN\_DYNAMIC].ImgCoord[OUTLINE\_STATIC\_DATA\_COUNT-2].y;

CamGuideLineData.CamlineObj[OBJ\_DISLINE3\_DYNAMIC].VertCoordBuf[5].z = 0.0;

}

return;

}

static vtbool RVC\_CamlineObjRender(enCamLineID Id, stVTDScrnWin win)

{

glViewport(win.x, FULLSCRN\_HEIGHT - win.y - win.height, win.width, win.height);

glEnable(GL\_DEPTH\_TEST);

glEnable(GL\_BLEND);

glBlendFunc(GL\_SRC\_ALPHA, GL\_ONE\_MINUS\_SRC\_ALPHA);

glScissor(CAM\_VIEW\_X, CAM\_VIEW\_Y, CAM\_VIEW\_WIDTH, CAM\_VIEW\_HEIGHT);

glEnable(GL\_SCISSOR\_TEST);

glUseProgram(CamLine\_UvProg.getHandle());

for(vtint32 ObjID = OBJ\_OUTLINE\_L\_STATIC; ObjID < OBJ\_NUM; ObjID++)

{

if(ObjID == OBJ\_OUTLINE\_L\_STATIC || ObjID == OBJ\_OUTLINE\_R\_STATIC || ObjID == OBJ\_DISLINE\_STATIC)

continue;

glBindBuffer(GL\_ARRAY\_BUFFER, CamGuideLineData.CamlineObj[ObjID].Vbo);

if(CamGuideLineData.DataUpdateFlag)

{

glBufferData(GL\_ARRAY\_BUFFER,

sizeof(GLfloat)\*CamGuideLineData.CamlineObj[ObjID].TriCnt\*3\*3,

CamGuideLineData.CamlineObj[ObjID].VertArray,

GL\_STATIC\_DRAW);

glVertexAttribPointer(GL\_VERTEX\_ARRAY, 3, GL\_FLOAT, 0, 0, 0);

}

glUniform4fv(CamGuideLineData.CamlineColorLoc, 1, CamGuideLineData.CamlineObj[ObjID].Color);

/\* vertex array \*/

glEnableVertexAttribArray(GL\_VERTEX\_ARRAY);

glBindBuffer(GL\_ARRAY\_BUFFER, CamGuideLineData.CamlineObj[ObjID].Vbo);

glVertexAttribPointer(GL\_VERTEX\_ARRAY, 3, GL\_FLOAT, 0, 0, 0);

glDrawArrays(GL\_TRIANGLES, 0, CamGuideLineData.CamlineObj[ObjID].TriCnt\*3);

}

for(vtint32 ObjID = OBJ\_OUTLINE\_L\_STATIC; ObjID < OBJ\_NUM; ObjID++)

{

if(ObjID == OBJ\_OUTLINE\_LN\_DYNAMIC || ObjID == OBJ\_OUTLINE\_RN\_DYNAMIC || ObjID == OBJ\_OUTLINE\_LF\_DYNAMIC || ObjID == OBJ\_OUTLINE\_RF\_DYNAMIC

|| ObjID == OBJ\_DISLINE1\_DYNAMIC || ObjID == OBJ\_DISLINE2\_DYNAMIC || ObjID == OBJ\_DISLINE3\_DYNAMIC)

continue;

glBindBuffer(GL\_ARRAY\_BUFFER, CamGuideLineData.CamlineObj[ObjID].Vbo);

if(CamGuideLineData.DataUpdateFlag)

{

glBufferData(GL\_ARRAY\_BUFFER,

sizeof(GLfloat)\*CamGuideLineData.CamlineObj[ObjID].TriCnt\*3\*3,

CamGuideLineData.CamlineObj[ObjID].VertArray,

GL\_STATIC\_DRAW);

glVertexAttribPointer(GL\_VERTEX\_ARRAY, 3, GL\_FLOAT, 0, 0, 0);

}

glUniform4fv(CamGuideLineData.CamlineColorLoc, 1, CamGuideLineData.CamlineObj[ObjID].Color);

/\* vertex array \*/

glEnableVertexAttribArray(GL\_VERTEX\_ARRAY);

glBindBuffer(GL\_ARRAY\_BUFFER, CamGuideLineData.CamlineObj[ObjID].Vbo);

glVertexAttribPointer(GL\_VERTEX\_ARRAY, 3, GL\_FLOAT, 0, 0, 0);

glDrawArrays(GL\_TRIANGLES, 0, CamGuideLineData.CamlineObj[ObjID].TriCnt\*3);

}

glDisable(GL\_DEPTH\_TEST);

glEnable(GL\_BLEND);

glDisable(GL\_SCISSOR\_TEST);

return VT\_TRUE;

}

vtbool RVC\_DrawCamviewGuideLine\_Rear(stVTDScrnWin win)

{

RVC\_SetWheelAngle\_Rear();

RVC\_SetCamLinePara\_Rear();

RVC\_GetCamLineCoord\_Rear();

RVC\_CoordConvert\_Rear();

RVC\_CoordBufferFill\_Rear();

return RVC\_CamlineObjRender(CAMLINE\_REAR, win);

}