Lissajous Curves 3D

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Chapter 1

Hierarchical Index

1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 2

Class Index

2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 3

File Index

3.1 File List

Here is a list of all files with brief descriptions:

Chapter 4

Class Documentation

4.1 ChartClass Class Reference

Contains the method that draws the curve.

`#include <ChartClass.h>`

Public Member Functions

- ChartClass (std::shared_ptr< ConfigClass > c)
  Constructor.
- void Draw (wxDC *dc, int w, int h)
  a normal function taking three arguments, drawing the curve

Public Attributes

- wxTimer timer

Private Attributes

- std::shared_ptr< ConfigClass > cfg

4.1.1 Detailed Description

Contains the method that draws the curve.

Definition at line 16 of file ChartClass.h.

4.1.2 Constructor & Destructor Documentation

4.1.2.1 ChartClass()

```
ChartClass::ChartClass (
            std::shared_ptr< ConfigClass > c )
```

Constructor.

Parameters

c	is a std::shared_ptr pointing at a ConfigClass object

Definition at line 7 of file ChartClass.cpp.

```
00008 {
00009     cfg = std::move(c);
00010 }
```

4.1.3 Member Function Documentation

4.1.3.1 Draw()

```
void ChartClass::Draw (
            wxDC * dc,
            int w,
            int h )
```

a normal function taking three arguments, drawing the curve

Parameters

dc	is a wxDC object, the curve is being drawn on it
w	is an inteager value, width of the window
h	is an inteager value, height of the window

Definition at line 12 of file ChartClass.cpp.

```
00013 {
00014     dc->SetBackground(wxBrush(wxColor(255, 255, 255)));
00015     dc->Clear();
00016     Vector4 vector1;
00017     Vector4 vector2;
00018     double r1, r2, phi1, phi2, th1, th2;
00019
00020     Matrix4 m2;
00021     double alpha = cfg->getZ_Rot() * M_PI / 180.0;
00022     m2.data[0][0] = cos(alpha);
00023     m2.data[0][1] = sin(alpha);
00024     m2.data[1][0] = -sin(alpha);
00025     m2.data[1][1] = cos(alpha);
00026     m2.data[2][2] = 1;
00027
00028     Matrix4 m3;
00029     alpha = cfg->getY_Rot() * M_PI / 180.0;
00030     m3.data[0][0] = cos(alpha);
00031     m3.data[0][2] = -sin(alpha);
00032     m3.data[1][1] = 1;
00033     m3.data[2][0] = sin(alpha);
00034     m3.data[2][2] = cos(alpha);
00035
00036     Matrix4 m4;
00037     alpha = cfg->getX_Rot() * M_PI / 180.0;
00038     m4.data[0][0] = 1;
00039     m4.data[1][1] = cos(alpha);
00040     m4.data[1][2] = sin(alpha);
00041     m4.data[2][1] = -sin(alpha);
00042     m4.data[2][2] = cos(alpha);
00043
00044     Matrix4 transform1 = m4 * m3 * m2;
00045     double minTheta = min(cfg->getX_theta() ,cfg->getY_theta(), cfg->getZ_theta());
00046     // drawing
00047     wxPen m_pen;
```

```
00048     m_pen.SetColour((wxColor(200, 200, 200)));
00049     dc->SetPen(m_pen);
00050     if (!cfg->get_Animation())
00051     {
00052         for (double i = 0; i < ((50 * 3.14159) / minTheta); i += ((2 * 3.14159) / (minTheta * 200)))
00053         {
00054             if(!cfg->get_Polar()){
00055                 vector1.data[0] = cfg->getX_A() * sin(cfg->getX_theta() * i + cfg->getX_phi());
00056                 vector1.data[1] = cfg->getY_A() * sin(cfg->getY_theta() * i + cfg->getY_phi());
00057                 vector1.data[2] = cfg->getZ_A() * sin(cfg->getZ_theta() * i + cfg->getZ_phi());
00058                 vector1.data[3] = 1;
00059                 vector1 = transform1 * vector1;
00060 
00061                 vector2.data[0] = cfg->getX_A() * sin(cfg->getX_theta() * (i + ((2 * 3.14159) /
    (minTheta * 200))) + cfg->getX_phi());
00062                 vector2.data[1] = cfg->getY_A() * sin(cfg->getY_theta() * (i + ((2 * 3.14159) /
    (minTheta * 200))) + cfg->getY_phi());
00063                 vector2.data[2] = cfg->getZ_A() * sin(cfg->getZ_theta() * (i + ((2 * 3.14159) /
    (minTheta * 200))) + cfg->getZ_phi());
00064                 vector2.data[3] = 1;
00065                 vector2 = transform1 * vector2;
00066             }
00067             else {
00068                 r1 = cfg->getR() * sin(cfg->getX_theta() * i + cfg->getX_phi());
00069                 th1 = M_PI * sin(cfg->getY_theta() * i + cfg->getY_phi());
00070                 phi1 = (M_PI/2) * sin(cfg->getZ_theta() * i + cfg->getZ_phi());
00071 
00072                 vector1.data[0] = r1 * cos(th1) * cos(phi1);
00073                 vector1.data[1] = r1 * sin(th1) * cos(phi1);
00074                 vector1.data[2] = r1 * sin(phi1);
00075                 vector2.data[3] = 1;
00076                 vector1 = transform1 * vector1;
00077 
00078                 r2 = cfg->getR() * sin(cfg->getX_theta() * (i + ((2 * 3.14159) / (minTheta * 200))) +
    cfg->getX_phi());
00079                 th2 = M_PI * sin(cfg->getY_theta() * (i + ((2 * 3.14159) / (minTheta * 200))) +
    cfg->getY_phi());
00080                 phi2 = (M_PI / 2) * sin(cfg->getZ_theta() * (i + ((2 * 3.14159) / (minTheta * 200))) +
    cfg->getZ_phi());
00081 
00082                 vector2.data[0] = r2 * cos(th2) * cos(phi2);
00083                 vector2.data[1] = r2 * sin(th2) * cos(phi2);
00084                 vector2.data[2] = r2 * sin(phi2);
00085                 vector2.data[3] = 1;
00086                 vector2 = transform1 * vector2;
00087             }
00088 
00089             dc->SetPen(wxPen(*wxBLACK, 2));
00090             if (cfg->get_Points() == true)
00091                 dc->DrawCircle(wxPoint(w / 2 + vector1.data[0], h / 2 + vector1.data[1]), 1);
00092             else
00093                 dc->DrawLine(wxPoint(w / 2 + vector1.data[0], h / 2 + vector1.data[1]), wxPoint(w / 2
    + vector2.data[0], h / 2 + vector2.data[1]));
00094         }
00095     }
00096     else
00097     {
00098         static long long int startPoint = 0;
00099         std::vector<std::vector<double» animationPoints;
00100         std::vector<double> t;
00101         if (!cfg->get_Polar())
00102             for (double i = 0; i < ((50 * 3.14159) / minTheta); i += ((2 * 3.14159) / (minTheta *
    200)))
00103             {
00104                 vector1.data[0] = cfg->getX_A() * sin(cfg->getX_theta() * i + cfg->getX_phi());
00105                 vector1.data[1] = cfg->getY_A() * sin(cfg->getY_theta() * i + cfg->getY_phi());
00106                 vector1.data[2] = cfg->getZ_A() * sin(cfg->getZ_theta() * i + cfg->getZ_phi());
00107                 vector1.data[3] = 1;
00108                 vector1 = transform1 * vector1;
00109                 t.push_back(vector1.data[0]);
00110                 t.push_back(vector1.data[1]);
00111                 animationPoints.push_back(t);
00112                 t.clear();
00113             }
00114         else
00115             for (double i = 0; i < ((50 * 3.14159) / minTheta); i += ((2 * 3.14159) / (minTheta *
    200)))
00116             {
00117                 r1 = cfg->getR() * sin(cfg->getX_theta() * i + cfg->getX_phi());
00118                 th1 = M_PI * sin(cfg->getY_theta() * i + cfg->getY_phi());
00119                 phi1 = (M_PI / 2) * sin(cfg->getZ_theta() * i + cfg->getZ_phi());
00120 
00121                 vector1.data[0] = r1 * cos(th1) * cos(phi1);
00122                 vector1.data[1] = r1 * sin(th1) * cos(phi1);
00123                 vector1.data[2] = r1 * sin(phi1);
00124                 vector2.data[3] = 1;
00125                 vector1 = transform1 * vector1;
```

```
00126                 t.push_back(vector1.data[0]);
00127                 t.push_back(vector1.data[1]);
00128                 animationPoints.push_back(t);
00129                 t.clear();
00130             }
00131         for (int i = 0; i < animationPoints.size()-1; i++)
00132         {
00133             dc->DrawLine(wxPoint(w / 2 + animationPoints[i][0], h / 2 + animationPoints[i][1]),
      wxPoint(w / 2 + animationPoints[(i + 1) % animationPoints.size()][0], h / 2 + animationPoints[(i + 1)
      % animationPoints.size()][1]));
00134         }
00135
00136         for (int i = startPoint; i < startPoint + 150;)
00137         {
00138             i %= animationPoints.size();
00139             dc->SetPen(wxPen(wxColor(255 * (i - startPoint) / 150, 0, 255 * (150 - i + startPoint) /
      150), 2));
00140             if (cfg->get_Points() == true)
00141             {
00142                 dc->DrawCircle(wxPoint(w / 2 + animationPoints[i][0], h / 2 + animationPoints[i][1]),
      1);
00143                 i += 4;
00144             }
00145             else
00146             {
00147                 dc->DrawLine(wxPoint(w / 2 + animationPoints[i][0], h / 2 + animationPoints[i][1]),
      wxPoint(w / 2 + animationPoints[(i + 1) % animationPoints.size()][0], h / 2 + animationPoints[(i + 1)
      % animationPoints.size()][1]));
00148                 i++;
00149             }
00150             if (i == animationPoints.size() - 1) i = 0;
00151         }
00152         if (cfg->get_Points()) startPoint += 4;
00153         else startPoint++;
00154         if (startPoint >= 4000) startPoint = 0;
00155     }
00156 }
```

4.1.4 Member Data Documentation

4.1.4.1 cfg

```
std::shared_ptr<ConfigClass> ChartClass::cfg  [private]
```

Definition at line 19 of file ChartClass.h.

4.1.4.2 timer

```
wxTimer ChartClass::timer
```

Definition at line 33 of file ChartClass.h.

The documentation for this class was generated from the following files:

- include/ChartClass.h
- src/ChartClass.cpp

4.2 ConfigClass Class Reference

Contains curve parameters, variables describing how the curve is being drawn and related methods.

`#include <ConfigClass.h>`

Public Member Functions

- ConfigClass (GUIMyFrame *wnd)
- bool get_Points ()

  a normal method returning a bool value.
- bool get_Animation ()

  a normal method returning a bool value.
- bool get_Polar ()

  a normal method returning a bool value.
- double getX_A ()

  a normal method returning a double value.
- double getY_A ()

  a normal method returning a double value.
- double getZ_A ()

  a normal method returning a double value.
- double getX_theta ()

  a normal method returning a double value.
- double getY_theta ()

  a normal method returning a double value.
- double getZ_theta ()

  a normal method returning a double value.
- double getX_phi ()

  a normal method returning a double value.
- double getY_phi ()

  a normal method returning a double value.
- double getZ_phi ()

  a normal method returning a double value.
- double getX_Rot ()

  a normal method returning a double value.
- double getY_Rot ()

  a normal method returning a double value.
- double getZ_Rot ()

  a normal method returning a double value.
- double getR ()

  a normal method returning a double value.
- void Set_Points (bool a)

  a normal method taking one argument and setting points variable
- void Set_Animation (bool a)

  a normal method taking one argument and setting animation variable
- void Set_ParamType (bool a)

  a normal method taking one argument and setting polar variable
- void SetX_Rot (int a)

  a normal method taking one argument and setting X_Rot variable
- void SetY_Rot (int a)

a normal method taking one argument and setting Y_Rot variable

- void SetZ_Rot (int a)

  a normal method taking one argument and setting Z_Rot variable
- void SetX_A (double a)

  a normal method taking one argument and setting X_A variable
- void SetY_A (double a)

  a normal method taking one argument and setting Y_A variable
- void SetZ_A (double a)

  a normal method taking one argument and setting Z_A variable
- void SetX_theta (double theta)

  a normal method taking one argument and setting X_theta variable
- void SetY_theta (double theta)

  a normal method taking one argument and setting Y_theta variable
- void SetZ_theta (double theta)

  a normal method taking one argument and setting Z_theta variable
- void SetX_phi (double phi)

  a normal method taking one argument and setting X_phi variable
- void SetY_phi (double phi)

  a normal method taking one argument and setting Y_phi variable
- void SetZ_phi (double phi)

  a normal method taking one argument and setting Z_phi variable
- void SetR (double nR)

  a normal method taking one argument and setting R variable

Protected Attributes

- GUIMyFrame * MainWindow
- double X_A
- double Y_A
- double Z_A
- double X_theta
- double Y_theta
- double Z_theta
- double X_phi
- double Y_phi
- double Z_phi
- double X_Rot
- double Y_Rot
- double Z_Rot
- double x
- double y
- double z
- double R
- bool animation
- bool points
- bool polar

4.2.1 Detailed Description

Contains curve parameters, variables describing how the curve is being drawn and related methods.

Definition at line 11 of file ConfigClass.h.

4.2.2 Constructor & Destructor Documentation

4.2.2.1 ConfigClass()

```
ConfigClass::ConfigClass (
            GUIMyFrame * wnd )
```

Definition at line 4 of file ConfigClass.cpp.

```
00005 {
00006     MainWindow = wnd;
00007     X_A = Y_A = Z_A = 100;
00008     X_theta = 1;
00009     Y_theta = 1;
00010     Z_theta = 0;
00011     X_phi = Z_phi = 0;
00012     Y_phi = 3.1415 / 2;
00013     R = 100;
00014
00015     points = false;
00016     animation = false;
00017     polar = false;
00018 }
```

4.2.3 Member Function Documentation

4.2.3.1 get_Animation()

```
bool ConfigClass::get_Animation ( )  [inline]
```

a normal method returning a bool value.

Returns

is the animation radiobox checked

Definition at line 37 of file ConfigClass.h.

```
00037 { return animation; }
```

4.2.3.2 get_Points()

```
bool ConfigClass::get_Points ( )  [inline]
```

a normal method returning a bool value.

Returns

is the dots radiobox checked

Definition at line 32 of file ConfigClass.h.

```
00032 { return points; }
```

4.2.3.3 get_Polar()

```
bool ConfigClass::get_Polar ( )  [inline]
```

a normal method returning a bool value.

Returns

is the polar radiobox checked

Definition at line 43 of file ConfigClass.h.

```
00043 { return  polar; };
```

4.2.3.4 getR()

```
double ConfigClass::getR ( )  [inline]
```

a normal method returning a double value.

Returns

R value

Definition at line 112 of file ConfigClass.h.

```
00112 { return R; };
```

4.2.3.5 getX_A()

```
double ConfigClass::getX_A ( )  [inline]
```

a normal method returning a double value.

Returns

A, X axis value

Definition at line 48 of file ConfigClass.h.

```
00048 { return  X_A; };
```

4.2.3.6 getX_phi()

```
double ConfigClass::getX_phi ( )  [inline]
```

a normal method returning a double value.

Returns

phi, X axis value

Definition at line 80 of file ConfigClass.h.

```
00080 { return  X_phi; };
```

4.2.3.7 getX_Rot()

```
double ConfigClass::getX_Rot ( )  [inline]
```

a normal method returning a double value.

Returns

rotation value, X axis

Definition at line 96 of file ConfigClass.h.

```
00096 { return  X_Rot; };
```

4.2.3.8 getX_theta()

```
double ConfigClass::getX_theta ( )  [inline]
```

a normal method returning a double value.

Returns

theta, X axis value

Definition at line 64 of file ConfigClass.h.

```
00064 { return  X_theta; };
```

4.2.3.9 getY_A()

```
double ConfigClass::getY_A ( )  [inline]
```

a normal method returning a double value.

Returns

A, Y axis value

Definition at line 53 of file ConfigClass.h.
```
00053 { return  Y_A; };
```

4.2.3.10 getY_phi()

```
double ConfigClass::getY_phi ( )  [inline]
```

a normal method returning a double value.

Returns

phi, Y axis value

Definition at line 85 of file ConfigClass.h.
```
00085 { return  Y_phi; };
```

4.2.3.11 getY_Rot()

```
double ConfigClass::getY_Rot ( )  [inline]
```

a normal method returning a double value.

Returns

rotation value, Y axis

Definition at line 101 of file ConfigClass.h.
```
00101 { return  Y_Rot; };
```

4.2.3.12 getY_theta()

```
double ConfigClass::getY_theta ( )  [inline]
```

a normal method returning a double value.

Returns

theta, Y axis value

Definition at line 69 of file ConfigClass.h.

```
00069 { return  Y_theta; };
```

4.2.3.13 getZ_A()

```
double ConfigClass::getZ_A ( )  [inline]
```

a normal method returning a double value.

Returns

A, Z axis value

Definition at line 58 of file ConfigClass.h.

```
00058 { return  Z_A; };
```

4.2.3.14 getZ_phi()

```
double ConfigClass::getZ_phi ( )  [inline]
```

a normal method returning a double value.

Returns

phi, Z axis value

Definition at line 90 of file ConfigClass.h.

```
00090 { return  Z_phi; };
```

4.2.3.15 getZ_Rot()

```
double ConfigClass::getZ_Rot ( )  [inline]
```

a normal method returning a double value.

Returns

rotation value, Z axis

Definition at line 106 of file ConfigClass.h.
```
00106 { return  Z_Rot; };
```

4.2.3.16 getZ_theta()

```
double ConfigClass::getZ_theta ( )  [inline]
```

a normal method returning a double value.

Returns

theta, Z axis value

Definition at line 74 of file ConfigClass.h.
```
00074 { return  Z_theta; };
```

4.2.3.17 Set_Animation()

```
void ConfigClass::Set_Animation (
            bool a )  [inline]
```

a normal method taking one argument and setting animation variable

Parameters

a	bool value, is the animation radiobox checked

Definition at line 123 of file ConfigClass.h.
```
00123 { animation = a; }
```

4.2.3.18 Set_ParamType()

```
void ConfigClass::Set_ParamType (
            bool a )  [inline]
```

a normal method taking one argument and setting polar variable

Parameters

a	bool value, is the polar radiobox checked

Definition at line 128 of file ConfigClass.h.

```
00128 { polar = a; }
```

4.2.3.19 Set_Points()

```
void ConfigClass::Set_Points (
            bool a )  [inline]
```

a normal method taking one argument and setting points variable

Parameters

a	bool value, is the dots radiobox checked

Definition at line 118 of file ConfigClass.h.

```
00118 { points = a; }
```

4.2.3.20 SetR()

```
void ConfigClass::SetR (
            double nR )  [inline]
```

a normal method taking one argument and setting R variable

Parameters

nR	int value, R value

Definition at line 198 of file ConfigClass.h.

```
00198 { R = nR; };
```

4.2.3.21 SetX_A()

```
void ConfigClass::SetX_A (
            double a )  [inline]
```

a normal method taking one argument and setting X_A variable

Parameters

a	int value, A value, X axis

Definition at line 150 of file ConfigClass.h.

```
00150 { X_A = a; };
```

4.2.3.22 SetX_phi()

```
void ConfigClass::SetX_phi (
            double phi )  [inline]
```

a normal method taking one argument and setting X_phi variable

Parameters

phi	int value, phi value, X axis

Definition at line 182 of file ConfigClass.h.

```
00182 { X_phi = phi; };
```

4.2.3.23 SetX_Rot()

```
void ConfigClass::SetX_Rot (
            int a )  [inline]
```

a normal method taking one argument and setting X_Rot variable

Parameters

a	int value, rotation value, X axis

Definition at line 134 of file ConfigClass.h.

```
00134 { X_Rot = a; }
```

4.2.3.24 SetX_theta()

```
void ConfigClass::SetX_theta (
            double theta )  [inline]
```

a normal method taking one argument and setting X_theta variable

Parameters

theta	int value, theta value, X axis

Definition at line 166 of file ConfigClass.h.

```
00166 { X_theta = theta; };
```

4.2.3.25 SetY_A()

```
void ConfigClass::SetY_A (
            double a )  [inline]
```

a normal method taking one argument and setting Y_A variable

Parameters

a	int value, A value, Y axis

Definition at line 155 of file ConfigClass.h.

```
00155 { Y_A = a; };
```

4.2.3.26 SetY_phi()

```
void ConfigClass::SetY_phi (
            double phi )  [inline]
```

a normal method taking one argument and setting Y_phi variable

Parameters

phi	int value, phi value, Y axis

Definition at line 187 of file ConfigClass.h.

```
00187 { Y_phi = phi; };
```

4.2.3.27 SetY_Rot()

```
void ConfigClass::SetY_Rot (
            int a )  [inline]
```

a normal method taking one argument and setting Y_Rot variable

Parameters

a	int value, rotation value, Y axis

Definition at line 139 of file ConfigClass.h.

```
00139 { Y_Rot = a; }
```

4.2.3.28 SetY_theta()

```
void ConfigClass::SetY_theta (
            double theta )  [inline]
```

a normal method taking one argument and setting Y_theta variable

Parameters

theta	int value, theta value, Y axis

Definition at line 171 of file ConfigClass.h.

```
00171 { Y_theta = theta; };
```

4.2.3.29 SetZ_A()

```
void ConfigClass::SetZ_A (
            double a )  [inline]
```

a normal method taking one argument and setting Z_A variable

Parameters

a	int value, A value, Z axis

Definition at line 160 of file ConfigClass.h.

```
00160 { Z_A = a; };
```

4.2.3.30 SetZ_phi()

```
void ConfigClass::SetZ_phi (
            double phi )  [inline]
```

a normal method taking one argument and setting Z_phi variable

Parameters

phi	int value, phi value, Z axis

Definition at line 192 of file ConfigClass.h.

```
00192 { Z_phi = phi; };
```

4.2.3.31 SetZ_Rot()

```
void ConfigClass::SetZ_Rot (
              int a )  [inline]
```

a normal method taking one argument and setting Z_Rot variable

Parameters

a	int value, rotation value, Z axis

Definition at line 144 of file ConfigClass.h.

```
00144 { Z_Rot = a; }
```

4.2.3.32 SetZ_theta()

```
void ConfigClass::SetZ_theta (
              double theta )  [inline]
```

a normal method taking one argument and setting Z_theta variable

Parameters

theta	int value, theta value, Z axis

Definition at line 176 of file ConfigClass.h.

```
00176 { Z_theta = theta; };
```

4.2.4 Member Data Documentation

4.2.4.1 animation

```
bool ConfigClass::animation  [protected]
```

Definition at line 21 of file ConfigClass.h.

4.2.4.2 MainWindow

```
GUIMyFrame* ConfigClass::MainWindow  [protected]
```

Definition at line 14 of file ConfigClass.h.

4.2.4.3 points

```
bool ConfigClass::points  [protected]
```

Definition at line 22 of file ConfigClass.h.

4.2.4.4 polar

```
bool ConfigClass::polar  [protected]
```

Definition at line 23 of file ConfigClass.h.

4.2.4.5 R

```
double ConfigClass::R  [protected]
```

Definition at line 20 of file ConfigClass.h.

4.2.4.6 x

```
double ConfigClass::x  [protected]
```

Definition at line 19 of file ConfigClass.h.

4.2.4.7 X_A

```
double ConfigClass::X_A  [protected]
```

Definition at line 15 of file ConfigClass.h.

4.2.4.8 X_phi

```
double ConfigClass::X_phi  [protected]
```

Definition at line 17 of file ConfigClass.h.

4.2.4.9 X_Rot

```
double ConfigClass::X_Rot  [protected]
```

Definition at line 18 of file ConfigClass.h.

4.2.4.10 X_theta

```
double ConfigClass::X_theta  [protected]
```

Definition at line 16 of file ConfigClass.h.

4.2.4.11 y

```
double ConfigClass::y  [protected]
```

Definition at line 19 of file ConfigClass.h.

4.2.4.12 Y_A

```
double ConfigClass::Y_A  [protected]
```

Definition at line 15 of file ConfigClass.h.

4.2.4.13 Y_phi

```
double ConfigClass::Y_phi  [protected]
```

Definition at line 17 of file ConfigClass.h.

4.2.4.14 Y_Rot

```
double ConfigClass::Y_Rot  [protected]
```

Definition at line 18 of file ConfigClass.h.

4.2.4.15 Y_theta

```
double ConfigClass::Y_theta  [protected]
```

Definition at line 16 of file ConfigClass.h.

4.2.4.16 z

```
double ConfigClass::z  [protected]
```

Definition at line 19 of file ConfigClass.h.

4.2.4.17 Z_A

```
double ConfigClass::Z_A  [protected]
```

Definition at line 15 of file ConfigClass.h.

4.2.4.18 Z_phi

```
double ConfigClass::Z_phi  [protected]
```

Definition at line 17 of file ConfigClass.h.

4.2.4.19 Z_Rot

```
double ConfigClass::Z_Rot  [protected]
```

Definition at line 18 of file ConfigClass.h.

4.2.4.20 Z_theta

```
double ConfigClass::Z_theta  [protected]
```

Definition at line 16 of file ConfigClass.h.

The documentation for this class was generated from the following files:

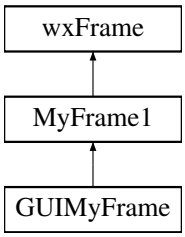
- include/ConfigClass.h
- src/ConfigClass.cpp

4.3 GUIMyFrame Class Reference

Derived class of MyFrame1, with methods that edit the curve.

```
#include <GUIMyFrame.h>
```

Inheritance diagram for GUIMyFrame:



Public Member Functions

- GUIMyFrame (wxWindow *parent)

  Constructor.
- void Repaint ()

  a normal method repainting the curve.
- ~GUIMyFrame ()

  Default destructor.

Public Attributes

- std::shared_ptr< ConfigClass > cfg

Protected Member Functions

- void MainFormClose (wxCloseEvent &event)

  Closes the window.
- void DisplayPanelRepaint (wxUpdateUIEvent &event)

  a normal member taking one argument and repainting main panel.
- void XRot_Updated (wxScrollEvent &event)

  a normal member taking one argument and updating X rotation.
- void YRot_Updated (wxScrollEvent &event)

  a normal member taking one argument and updating Y rotation.
- void ZRot_Updated (wxScrollEvent &event)

  a normal member taking one argument and updating Z rotation.
- void XA_Updated (wxCommandEvent &event)

  a normal member taking one argument anad updating X amplitude.
- void YA_Updated (wxCommandEvent &event)

  a normal member taking one argument anad updating Y amplitude.
- void ZA_Updated (wxCommandEvent &event)

  a normal member taking one argument anad updating Z amplitude.
- void XTheta_Updated (wxCommandEvent &event)

  a normal member taking one argument anad updating X theta.
- void YTheta_Updated (wxCommandEvent &event)

  a normal member taking one argument anad updating Y theta.
- void ZTheta_Updated (wxCommandEvent &event)

  a normal member taking one argument anad updating Z theta.
- void XPhi_Updated (wxCommandEvent &event)

  a normal member taking one argument anad updating X phi.
- void YPhi_Updated (wxCommandEvent &event)

  a normal member taking one argument anad updating Y phi.
- void ZPhi_Updated (wxCommandEvent &event)

  a normal member taking one argument anad updating Z phi.
- void DotsLines_Updated (wxCommandEvent &event)

  a normal method updating the drawing method of the curve (dotes/lines).
- void Animation_Updated (wxCommandEvent &event)

  a normal method updating the drawing method of the curve (animated/static).
- void ParamType_Updated (wxCommandEvent &event)

  a normal method updating the drawing method of the curve (cartesian/polar).

Friends

- class ChartClass

Additional Inherited Members

4.3.1 Detailed Description

Derived class of MyFrame1, with methods that edit the curve.

Definition at line 19 of file GUIMyFrame.h.

4.3.2 Constructor & Destructor Documentation

4.3.2.1 GUIMyFrame()

```
GUIMyFrame::GUIMyFrame (
            wxWindow * parent )
```

Constructor.

Parameters

parent	is a wxWindow

Definition at line 5 of file GUIMyFrame.cpp.

```
00005                                       : MyFrame1(parent)
00006 {
00007     cfg = std::make_shared<ConfigClass>(this);
00008     Repaint();
00009 }
```

4.3.2.2 ~GUIMyFrame()

```
GUIMyFrame::~GUIMyFrame ( )
```

Default destructor.

Definition at line 11 of file GUIMyFrame.cpp.

```
00012 {}
```

4.3.3 Member Function Documentation

4.3.3.1 Animation_Updated()

```
void GUIMyFrame::Animation_Updated (
            wxCommandEvent & event )  [protected], [virtual]
```

a normal method updating the drawing method of the curve (animated/static).

Parameters

event	is a wxCommandEvent

Reimplemented from MyFrame1.

Definition at line 147 of file GUIMyFrame.cpp.

```
00148 {
00149     if (animationBox->GetSelection() == 0) {
00150         cfg->Set_Animation(false);
00151     }
00152     else {
00153         cfg->Set_Animation(true);
00154     }
00155     Repaint();
00156 }
```

4.3.3.2 DisplayPanelRepaint()

```
void GUIMyFrame::DisplayPanelRepaint (
            wxUpdateUIEvent & event )  [protected], [virtual]
```

a normal member taking one argument and repainting main panel.

Parameters

event	is a wxUpdateUIEvent

Reimplemented from MyFrame1.

Definition at line 196 of file GUIMyFrame.cpp.

```
00197 {
00198     static int i = 0;
00199     if (cfg->get_Animation())
00200     {
00201         i++;
00202         if (i % 4 == 0 && cfg->get_Points())
00203             Repaint();
00204         if (!cfg->get_Points())
00205             Repaint();
00206         if (i > 1000) i = 0;
00207     }
00208     else
00209         Repaint();
00210 }
```

4.3.3.3 DotsLines_Updated()

```
void GUIMyFrame::DotsLines_Updated (
            wxCommandEvent & event )  [protected], [virtual]
```

a normal method updating the drawing method of the curve (dotes/lines).

Parameters

event	is a wxCommandEvent

Reimplemented from MyFrame1.

Definition at line 136 of file GUIMyFrame.cpp.

```
00137 {
00138     if (m_radioBox1->GetSelection() == 0) {
```

```
00139         cfg->Set_Points(false);
00140     }
00141     else {
00142         cfg->Set_Points(true);
00143     }
00144     Repaint();
00145 }
```

4.3.3.4 MainFormClose()

```
void GUIMyFrame::MainFormClose (
            wxCloseEvent & event )  [protected], [virtual]
```

Closes the window.

Parameters

event	is a wxCloseEvent

Reimplemented from MyFrame1.

Definition at line 14 of file GUIMyFrame.cpp.

```
00015 {
00016     Destroy();
00017 }
```

4.3.3.5 ParamType_Updated()

```
void GUIMyFrame::ParamType_Updated (
            wxCommandEvent & event )  [protected], [virtual]
```

a normal method updating the drawing method of the curve (cartesian/polar).

Parameters

event	is a wxCommandEvent

Reimplemented from MyFrame1.

Definition at line 158 of file GUIMyFrame.cpp.

```
00158                                                   {
00159     if (ParamBox->GetSelection() == 0) { //uklad kartezjanski
00160         cfg->Set_ParamType(false);
00161         m_AYText->SetEditable(true);
00162         m_AZText->SetEditable(true);
00163         m_AYText->Clear();
00164         m_AZText->Clear();
00165         m_staticText5->SetLabel("A");
00166         m_staticText53->SetLabel("A");
00167         m_staticText54->SetLabel("A");
00168         m_staticText51->SetLabel(wxT(""));
00169         m_staticText51->SetLabel(wxT(""));
00170         m_staticText51->SetLabel(wxT(""));
00171         m_staticText19->SetLabel("X");
00172         m_staticText18->SetLabel("Y");
00173         m_staticText4->SetLabel("Z");
```

```
00174     }
00175     else {
00176         cfg->Set_ParamType(true);
00177         m_AYText->SetEditable(false);
00178         m_AYText->Clear();
00179         m_AYText->AppendText("-");
00180         m_AZText->SetEditable(false);
00181         m_AZText->Clear();
00182         m_AZText->AppendText("-");
00183         m_staticText5->SetLabel("r");
00184         m_staticText53->SetLabel("-");
00185         m_staticText54->SetLabel("-");
00186         m_staticText51->SetLabel(wxT(""));
00187         m_staticText511->SetLabel(wxT(""));
00188         m_staticText512->SetLabel(wxT(""));
00189         m_staticText19->SetLabel("R");
00190         m_staticText18->SetLabel(wxT(""));
00191         m_staticText4->SetLabel(wxT(""));
00192     }
00193     Repaint();
00194 }
```

4.3.3.6 Repaint()

```
void GUIMyFrame::Repaint ( )
```

a normal method repainting the curve.

Definition at line 212 of file GUIMyFrame.cpp.

```
00213 {
00214     wxClientDC dc1(m_DisplayWindow);
00215     wxBufferedDC dc(&dc1);
00216
00217     ChartClass MyChart(cfg);
00218     int w, h;
00219     m_DisplayWindow->GetSize(&w, &h);
00220     MyChart.Draw(&dc, w, h);
00221 }
```

4.3.3.7 XA_Updated()

```
void GUIMyFrame::XA_Updated (
            wxCommandEvent & event )  [protected], [virtual]
```

a normal member taking one argument anad updating X amplitude.

Parameters

event	is a wxCommandEvent

Reimplemented from MyFrame1.

Definition at line 37 of file GUIMyFrame.cpp.

```
00037                                                {
00038     double v;
00039     if (cfg->get_Polar()) {
00040         if (m_AXText->GetValue().ToDouble(&v))
00041         {
00042             cfg->SetR(v);
00043             Repaint();
00044         }
```

```
00045     }
00046     else {
00047         if (m_AXText->GetValue().ToDouble(&v))
00048         {
00049             cfg->SetX_A(v);
00050                 Repaint();
00051         }
00052         else wxBell();
00053     }
00054 }
```

4.3.3.8 XPhi_Updated()

```
void GUIMyFrame::XPhi_Updated (
            wxCommandEvent & event )  [protected], [virtual]
```

a normal member taking one argument anad updating X phi.

Parameters

event	is a wxCommandEvent

Reimplemented from MyFrame1.

Definition at line 106 of file GUIMyFrame.cpp.

```
00106                                                 {
00107     double v;
00108     if (m_PhiXText->GetValue().ToDouble(&v))
00109     {
00110         cfg->SetX_phi(v);
00111         Repaint();
00112     }
00113     else wxBell();
00114 }
```

4.3.3.9 XRot_Updated()

```
void GUIMyFrame::XRot_Updated (
            wxScrollEvent & event )  [protected], [virtual]
```

a normal member taking one argument and updating X rotation.

Parameters

event	is a wxScrollEvent

Reimplemented from MyFrame1.

Definition at line 19 of file GUIMyFrame.cpp.

```
00020 {
00021     cfg->SetX_Rot(m_XRotationSlider->GetValue());
00022     Repaint();
00023 }
```

4.3.3.10 XTheta_Updated()

```
void GUIMyFrame::XTheta_Updated (
            wxCommandEvent & event )  [protected], [virtual]
```

a normal member taking one argument anad updating X theta.

Parameters

event	is a wxCommandEvent

Reimplemented from MyFrame1.

Definition at line 76 of file GUIMyFrame.cpp.

```
00076                                                    {
00077     double v;
00078     if (m_ThXText->GetValue().ToDouble(&v))
00079     {
00080         cfg->SetX_theta(v);
00081         Repaint();
00082     }
00083     else wxBell();
00084 }
```

4.3.3.11 YA_Updated()

```
void GUIMyFrame::YA_Updated (
            wxCommandEvent & event )  [protected], [virtual]
```

a normal member taking one argument anad updating Y amplitude.

Parameters

event	is a wxCommandEvent

Reimplemented from MyFrame1.

Definition at line 56 of file GUIMyFrame.cpp.

```
00056                                                {
00057     double v;
00058     if (m_AYText->GetValue().ToDouble(&v))
00059     {
00060         cfg->SetY_A(v);
00061         Repaint();
00062     }
00063     else wxBell();
00064 }
```

4.3.3.12 YPhi_Updated()

```
void GUIMyFrame::YPhi_Updated (
            wxCommandEvent & event )  [protected], [virtual]
```

a normal member taking one argument anad updating Y phi.

Parameters

event	is a wxCommandEvent

Reimplemented from MyFrame1.

Definition at line 116 of file GUIMyFrame.cpp.

```
00116                                                   {
00117     double v;
00118     if (m_PhiYText->GetValue().ToDouble(&v))
00119     {
00120         cfg->SetY_phi(v);
00121         Repaint();
00122     }
00123     else wxBell();
00124 }
```

4.3.3.13 YRot_Updated()

```
void GUIMyFrame::YRot_Updated (
            wxScrollEvent & event )  [protected], [virtual]
```

a normal member taking one argument and updating Y rotation.

Parameters

event	is a wxScrollEvent

Reimplemented from MyFrame1.

Definition at line 25 of file GUIMyFrame.cpp.

```
00026 {
00027     cfg->SetY_Rot(m_YRotationSlider->GetValue());
00028     Repaint();
00029 }
```

4.3.3.14 YTheta_Updated()

```
void GUIMyFrame::YTheta_Updated (
            wxCommandEvent & event )  [protected], [virtual]
```

a normal member taking one argument anad updating Y theta.

Parameters

event	is a wxCommandEvent

Reimplemented from MyFrame1.

Definition at line 86 of file GUIMyFrame.cpp.

```
00086                                                   {
```

```
00087     double v;
00088     if (m_ThYText->GetValue().ToDouble(&v))
00089     {
00090         cfg->SetY_theta(v);
00091         Repaint();
00092     }
00093     else wxBell();
00094 }
```

4.3.3.15 ZA_Updated()

```
void GUIMyFrame::ZA_Updated (
            wxCommandEvent & event )  [protected], [virtual]
```

a normal member taking one argument anad updating Z amplitude.

Parameters

event	is a wxCommandEvent

Reimplemented from MyFrame1.

Definition at line 66 of file GUIMyFrame.cpp.

```
00066                                                {
00067     double v;
00068     if (m_AZText->GetValue().ToDouble(&v))
00069     {
00070         cfg->SetZ_A(v);
00071         Repaint();
00072     }
00073     else wxBell();
00074 }
```

4.3.3.16 ZPhi_Updated()

```
void GUIMyFrame::ZPhi_Updated (
            wxCommandEvent & event )  [protected], [virtual]
```

a normal member taking one argument anad updating Z phi.

Parameters

event	is a wxCommandEvent

Reimplemented from MyFrame1.

Definition at line 126 of file GUIMyFrame.cpp.

```
00126                                                  {
00127     double v;
00128     if (m_PhiZText->GetValue().ToDouble(&v))
00129     {
00130         cfg->SetZ_phi(v);
00131         Repaint();
00132     }
00133     else wxBell();
00134 }
```

4.3.3.17 ZRot_Updated()

```
void GUIMyFrame::ZRot_Updated (
            wxScrollEvent & event )  [protected], [virtual]
```

a normal member taking one argument and updating Z rotation.

Parameters

event	is a wxScrollEvent

Reimplemented from MyFrame1.

Definition at line 31 of file GUIMyFrame.cpp.

```
00032 {
00033     cfg->SetZ_Rot(m_ZRotationSlider->GetValue());
00034     Repaint();
00035 }
```

4.3.3.18 ZTheta_Updated()

```
void GUIMyFrame::ZTheta_Updated (
            wxCommandEvent & event )  [protected], [virtual]
```

a normal member taking one argument anad updating Z theta.

Parameters

event	is a wxCommandEvent

Reimplemented from MyFrame1.

Definition at line 96 of file GUIMyFrame.cpp.

```
00096                                                   {
00097     double v;
00098     if (m_ThZText->GetValue().ToDouble(&v))
00099     {
00100         cfg->SetZ_theta(v);
00101         Repaint();
00102     }
00103     else wxBell();
00104 }
```

4.3.4 Friends And Related Function Documentation

4.3.4.1 ChartClass

```
friend class ChartClass  [friend]
```

shared_ptr with ConfigClass type

Definition at line 128 of file GUIMyFrame.h.

4.3.5 Member Data Documentation

4.3.5.1 cfg

```
std::shared_ptr<ConfigClass> GUIMyFrame::cfg
```

Definition at line 127 of file GUIMyFrame.h.

The documentation for this class was generated from the following files:

- include/GUIMyFrame.h
- src/GUIMyFrame.cpp

4.4 Matrix4 Class Reference

a matrix class.

```
#include <vecmat.h>
```

Public Member Functions

- Matrix4 ()
- void Print (void)
- Matrix4 operator∗ (const Matrix4)

Public Attributes

- double data [4][4]

Friends

- Vector4 operator∗ (const Matrix4, const Vector4)

4.4.1 Detailed Description

a matrix class.

Definition at line 30 of file vecmat.h.

4.4.2 Constructor & Destructor Documentation

4.4.2.1 Matrix4()

```
Matrix4::Matrix4 ( )
```

Definition at line 49 of file vecmat.cpp.

```
00050 {
00051     data[0][0] = 0.0; data[0][1] = 0.0; data[0][2] = 0.0; data[0][3] = 0.0;
00052     data[1][0] = 0.0; data[1][1] = 0.0; data[1][2] = 0.0; data[1][3] = 0.0;
00053     data[2][0] = 0.0; data[2][1] = 0.0; data[2][2] = 0.0; data[2][3] = 0.0;
00054     data[3][0] = 0.0; data[3][1] = 0.0; data[3][2] = 0.0; data[3][3] = 1.0;
00055 }
```

4.4.3 Member Function Documentation

4.4.3.1 operator∗()

```
Matrix4 Matrix4::operator* (
            const Matrix4 gMatrix )
```

Definition at line 65 of file vecmat.cpp.

```
00066 {
00067     int i, j, k;
00068     Matrix4 tmp;
00069
00070     for (i = 0; i < 4; i++)
00071         for (j = 0; j < 4; j++)
00072         {
00073             tmp.data[i][j] = 0.0;
00074             for (k = 0; k < 4; k++)
00075                 tmp.data[i][j] = tmp.data[i][j] + (data[i][k] * gMatrix.data[k][j]);
00076         }
00077     return tmp;
00078 }
```

4.4.3.2 Print()

```
void Matrix4::Print (
            void  )
```

Definition at line 57 of file vecmat.cpp.

```
00058 {
00059     printf("\n|%2.3lf,%2.3lf,%2.3lf,%2.3lf|\n", data[0][0], data[0][1], data[0][2], data[0][3]);
00060     printf("|%2.3lf,%2.3lf,%2.3lf,%2.3lf|\n", data[1][0], data[1][1], data[1][2], data[1][3]);
00061     printf("|%2.3lf,%2.3lf,%2.3lf,%2.3lf|\n", data[2][0], data[2][1], data[2][2], data[2][3]);
00062     printf("|%2.3lf,%2.3lf,%2.3lf,%2.3lf|\n", data[3][0], data[3][1], data[3][2], data[2][3]);
00063 }
```

4.4.4 Friends And Related Function Documentation

4.4.4.1 operator*

```
Vector4 operator* (
            const Matrix4 gMatrix,
            const Vector4 gVector )  [friend]
```

Definition at line 80 of file vecmat.cpp.

```
00081 {
00082     unsigned int i, j;
00083     Vector4 tmp;
00084
00085     for (i = 0; i < 4; i++)
00086     {
00087         tmp.data[i] = 0.0;
00088         for (j = 0; j < 4; j++) tmp.data[i] = tmp.data[i] + (gMatrix.data[i][j] * gVector.data[j]);
00089     }
00090     return tmp;
00091 }
```

4.4.5 Member Data Documentation

4.4.5.1 data

```
double Matrix4::data[4][4]
```

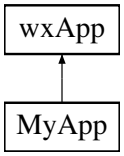
Definition at line 33 of file vecmat.h.

The documentation for this class was generated from the following files:

- include/vecmat.h
- src/vecmat.cpp

4.5 MyApp Class Reference

Inheritance diagram for MyApp:



Public Member Functions

- virtual bool OnInit ()
- virtual int OnExit ()

4.5.1 Detailed Description

Definition at line 4 of file main.cpp.

4.5.2 Member Function Documentation

4.5.2.1 OnExit()

```
virtual int MyApp::OnExit ( )  [inline], [virtual]
```

Definition at line 8 of file main.cpp.

```
00008 { return 0; }
```

4.5.2.2 OnInit()

```
bool MyApp::OnInit ( )  [virtual]
```

Definition at line 14 of file main.cpp.

```
00015 {
00016     GUIMyFrame* mainFrame = new GUIMyFrame(NULL);
00017
00018     mainFrame->Show(true);
00019     SetTopWindow(mainFrame);
00020
00021     return true;
00022 }
```

The documentation for this class was generated from the following file:

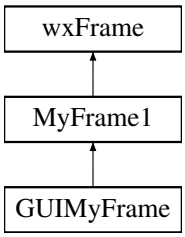
- main.cpp

4.6 MyFrame1 Class Reference

Class MyFrame1.

```
#include <Window.h>
```

Inheritance diagram for MyFrame1:



Public Member Functions

- MyFrame1 (wxWindow *parent, wxWindowID id=wxID_ANY, const wxString &title=wxEmptyString, const wxPoint &pos=wxDefaultPosition, const wxSize &size=wxSize(1055, 612), long style=wxDEFAULT_↩ FRAME_STYLE|wxTAB_TRAVERSAL)

  Constructor. Connects all of the events handlers. Initializes objects, and text,.
- ~MyFrame1 ()

  Default destructor. Disconnects all of the events handlers.

Public Attributes

- wxPanel ∗ m_DisplayWindow

Protected Member Functions

- virtual void MainFormClose (wxCloseEvent &event)

  a pure virtual member.
- virtual void DisplayPanelRepaint (wxUpdateUIEvent &event)

  a pure virtual member.
- virtual void Scrolls_Updated (wxScrollEvent &event)

  a pure virtual member.
- virtual void XRot_Updated (wxScrollEvent &event)

  a pure virtual member.
- virtual void YRot_Updated (wxScrollEvent &event)

  a pure virtual member.
- virtual void ZRot_Updated (wxScrollEvent &event)

  a pure virtual member.
- virtual void XA_Updated (wxCommandEvent &event)

  a pure virtual member.
- virtual void YA_Updated (wxCommandEvent &event)

  a pure virtual member.
- virtual void ZA_Updated (wxCommandEvent &event)

  a pure virtual member.
- virtual void XTheta_Updated (wxCommandEvent &event)

  a pure virtual member.
- virtual void YTheta_Updated (wxCommandEvent &event)

  a pure virtual member.
- virtual void ZTheta_Updated (wxCommandEvent &event)

  a pure virtual member.
- virtual void XPhi_Updated (wxCommandEvent &event)

  a pure virtual member.
- virtual void YPhi_Updated (wxCommandEvent &event)

  a pure virtual member.
- virtual void ZPhi_Updated (wxCommandEvent &event)

  a pure virtual member.
- virtual void DotsLines_Updated (wxCommandEvent &event)

  a pure virtual member.
- virtual void Animation_Updated (wxCommandEvent &event)

  a pure virtual member.
- virtual void AnimationBreak (wxCommandEvent &event)

  a pure virtual member.
- virtual void ParamType_Updated (wxCommandEvent &event)

  a pure virtual member.

Protected Attributes

- wxStaticText * m_staticText20
- wxStaticText * m_staticText21
- wxStaticText * m_staticText22
- wxStaticText * m_staticText23
- wxStaticText * m_staticText17
- wxStaticText * m_staticText19
- wxStaticText * m_staticText5
- wxStaticText * m_staticText51
- wxStaticText * m_staticText52
- wxStaticText * m_staticText18
- wxStaticText * m_staticText53
- wxStaticText * m_staticText511
- wxStaticText * m_staticText521
- wxStaticText * m_staticText4
- wxStaticText * m_staticText54
- wxStaticText * m_staticText512
- wxStaticText * m_staticText522
- wxSlider * m_XRotationSlider
- wxSlider * m_YRotationSlider
- wxSlider * m_ZRotationSlider
- wxRadioBox * animationBox
- wxRadioBox * m_radioBox1
- wxRadioBox * ParamBox
- wxTextCtrl * m_AXText
- wxTextCtrl * m_ThXText
- wxTextCtrl * m_PhiXText
- wxTextCtrl * m_AYText
- wxTextCtrl * m_ThYText
- wxTextCtrl * m_PhiYText
- wxTextCtrl * m_AZText
- wxTextCtrl * m_ThZText
- wxTextCtrl * m_PhiZText
- wxTimer m_timer

Friends

- class GUIMyFrame

4.6.1 Detailed Description

Class MyFrame1.

a base class for the app

Definition at line 36 of file Window.h.

4.6.2 Constructor & Destructor Documentation

4.6.2.1 MyFrame1()

```
MyFrame1::MyFrame1 (
            wxWindow * parent,
            wxWindowID id = wxID_ANY,
            const wxString & title = wxEmptyString,
            const wxPoint & pos = wxDefaultPosition,
            const wxSize & size = wxSize(1055, 612),
            long style = wxDEFAULT_FRAME_STYLE | wxTAB_TRAVERSAL )
```

Constructor. Connects all of the events handlers. Initializes objects, and text,.

Definition at line 12 of file Window.cpp.

```
00012
                          : wxFrame(parent, id, title, pos, size, style), m_timer(this, 1)
00013 {
00014     SetTitle(_("Linie Lissajous - Natalia Przetocka, Karolina Klimek i Mateusz Lewandowski"));
00015     this->SetSizeHints(wxDefaultSize, wxDefaultSize);
00016
00017     wxBoxSizer* bSizer1;
00018     bSizer1 = new wxBoxSizer(wxHORIZONTAL);
00019
00020     wxBoxSizer* bSizer2;
00021     bSizer2 = new wxBoxSizer(wxVERTICAL);
00022
00023     wxBoxSizer* bSizer30;
00024     bSizer30 = new wxBoxSizer(wxVERTICAL);
00025
00026     m_DisplayWindow = new wxPanel(this, wxID_ANY, wxDefaultPosition, wxDefaultSize, wxTAB_TRAVERSAL);
00027     m_DisplayWindow->SetBackgroundColour(wxSystemSettings::GetColour(wxSYS_COLOUR_BTNHIGHLIGHT));
00028
00029     bSizer30->Add(m_DisplayWindow, 5, wxALL | wxEXPAND, 5);
00030
00031     bSizer2->Add(bSizer30, 30, wxEXPAND, 5);
00032
00033     wxBoxSizer* bSizer37;
00034     bSizer37 = new wxBoxSizer(wxHORIZONTAL);
00035
00036     wxBoxSizer* bSizer38;
00037     bSizer38 = new wxBoxSizer(wxVERTICAL);
00038
00039     wxBoxSizer* bSizer36;
00040     bSizer36 = new wxBoxSizer(wxVERTICAL);
00041
00042     m_staticText20 = new wxStaticText(this, wxID_ANY, wxT("Rotacja"), wxDefaultPosition,
      wxDefaultSize, 0);
00043     m_staticText20->Wrap(-1);
00044     m_staticText20->SetFont(wxFont(12, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00045
00046     bSizer36->Add(m_staticText20, 0, wxALL | wxALIGN_CENTER_HORIZONTAL, 5);
00047
00048     bSizer38->Add(bSizer36, 0, wxEXPAND, 5);
00049
00050     wxBoxSizer* bSizer32;
00051     bSizer32 = new wxBoxSizer(wxHORIZONTAL);
00052
00053     wxBoxSizer* bSizer33;
00054     bSizer33 = new wxBoxSizer(wxVERTICAL);
00055
00056     wxBoxSizer* bSizer40;
00057     bSizer40 = new wxBoxSizer(wxVERTICAL);
00058
00059     m_staticText21 = new wxStaticText(this, wxID_ANY, wxT("O X"), wxDefaultPosition, wxDefaultSize,
      0);
00060     m_staticText21->Wrap(-1);
00061     m_staticText21->SetFont(wxFont(12, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00062
00063     bSizer40->Add(m_staticText21, 0, wxALL | wxALIGN_CENTER_HORIZONTAL, 5);
00064
00065     bSizer33->Add(bSizer40, 0, wxEXPAND, 5);
00066
00067     wxBoxSizer* bSizer42;
00068     bSizer42 = new wxBoxSizer(wxVERTICAL);
00069
00070     m_XRotationSlider = new wxSlider(this, wxID_ANY, 0, 0, 360, wxDefaultPosition, wxSize(-1, -1),
      wxSL_HORIZONTAL | wxSL_VALUE_LABEL);
00071     m_XRotationSlider->SetMaxSize(wxSize(300, -1));
00072
```

```
00073     bSizer42->Add(m_XRotationSlider, 0, wxALIGN_CENTER_HORIZONTAL | wxALIGN_CENTER_VERTICAL | wxALL |
      wxEXPAND, 5);
00074
00075     bSizer33->Add(bSizer42, 0, wxEXPAND, 5);
00076
00077     bSizer32->Add(bSizer33, 1, wxEXPAND, 5);
00078
00079     wxBoxSizer* bSizer34;
00080     bSizer34 = new wxBoxSizer(wxVERTICAL);
00081
00082     m_staticText22 = new wxStaticText(this, wxID_ANY, wxT("O Y"), wxDefaultPosition, wxDefaultSize,
      0);
00083     m_staticText22->Wrap(-1);
00084     m_staticText22->SetFont(wxFont(12, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00085
00086     bSizer34->Add(m_staticText22, 0, wxALL | wxALIGN_CENTER_HORIZONTAL, 5);
00087
00088     m_YRotationSlider = new wxSlider(this, wxID_ANY, 0, 0, 360, wxDefaultPosition, wxDefaultSize,
      wxSL_HORIZONTAL | wxSL_VALUE_LABEL);
00089     m_YRotationSlider->SetMaxSize(wxSize(300, -1));
00090
00091     bSizer34->Add(m_YRotationSlider, 0, wxALIGN_CENTER_HORIZONTAL | wxALL | wxEXPAND, 5);
00092
00093     bSizer32->Add(bSizer34, 1, wxEXPAND, 5);
00094
00095     wxBoxSizer* bSizer35;
00096     bSizer35 = new wxBoxSizer(wxVERTICAL);
00097
00098     m_staticText23 = new wxStaticText(this, wxID_ANY, wxT("O Z"), wxDefaultPosition, wxDefaultSize,
      0);
00099     m_staticText23->Wrap(-1);
00100     m_staticText23->SetFont(wxFont(12, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00101
00102     bSizer35->Add(m_staticText23, 0, wxALL | wxALIGN_CENTER_HORIZONTAL, 5);
00103
00104     m_ZRotationSlider = new wxSlider(this, wxID_ANY, 0, 0, 360, wxDefaultPosition, wxDefaultSize,
      wxSL_HORIZONTAL | wxSL_VALUE_LABEL);
00105     m_ZRotationSlider->SetMaxSize(wxSize(300, -1));
00106
00107     bSizer35->Add(m_ZRotationSlider, 0, wxALIGN_CENTER_HORIZONTAL | wxALL | wxEXPAND, 5);
00108
00109     bSizer32->Add(bSizer35, 1, wxEXPAND, 5);
00110
00111     bSizer38->Add(bSizer32, 0, wxEXPAND, 5);
00112
00113     bSizer37->Add(bSizer38, 3, wxEXPAND, 5);
00114
00115     bSizer2->Add(bSizer37, 0, wxEXPAND, 5);
00116
00117     bSizer1->Add(bSizer2, 7, wxALIGN_RIGHT | wxEXPAND, 5);
00118
00119     wxBoxSizer* bSizer4;
00120     bSizer4 = new wxBoxSizer(wxVERTICAL);
00121
00122     m_staticText17 = new wxStaticText(this, wxID_ANY, wxT("Parametry"), wxDefaultPosition,
      wxDefaultSize, 0);
00123     m_staticText17->Wrap(-1);
00124     m_staticText17->SetFont(wxFont(16, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00125
00126     bSizer4->Add(m_staticText17, 0, wxALL | wxALIGN_CENTER_HORIZONTAL, 5);
00127
00128     wxBoxSizer* bSizer361;
00129     bSizer361 = new wxBoxSizer(wxVERTICAL);
00130
00131     wxString ParamBoxChoices[] = { wxT("Kartezjaska"), wxT("Biegunowa") };
00132     int ParamBoxNChoices = sizeof(ParamBoxChoices) / sizeof(wxString);
00133     ParamBox = new wxRadioBox(this, wxID_ANY, wxT("Rodzaj parametryzacji"), wxDefaultPosition,
      wxDefaultSize, ParamBoxNChoices, ParamBoxChoices, 1, wxRA_SPECIFY_COLS);
00134     ParamBox->SetSelection(0);
00135     bSizer361->Add(ParamBox, 0, wxALIGN_CENTER_HORIZONTAL | wxALIGN_CENTER_VERTICAL | wxALL, 5);
00136
00137
00138     bSizer4->Add(bSizer361, 0, wxEXPAND, 5);
00139
00140     wxBoxSizer* bSizer9;
00141     bSizer9 = new wxBoxSizer(wxVERTICAL);
00142
00143     m_staticText19 = new wxStaticText(this, wxID_ANY, wxT("X"), wxDefaultPosition, wxDefaultSize, 0);
00144     m_staticText19->Wrap(-1);
00145     m_staticText19->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00146
00147     bSizer9->Add(m_staticText19, 0, wxALL | wxALIGN_CENTER_HORIZONTAL, 5);
00148
```

```
00149     wxBoxSizer* bSizer10;
00150     bSizer10 = new wxBoxSizer(wxHORIZONTAL);
00151
00152     m_staticText5 = new wxStaticText(this, wxID_ANY, wxT("A"), wxDefaultPosition, wxDefaultSize, 0);
00153     m_staticText5->Wrap(-1);
00154     m_staticText5->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00155
00156     bSizer10->Add(m_staticText5, 1, wxALL | wxALIGN_CENTER_VERTICAL, 5);
00157
00158     m_AXText = new wxTextCtrl(this, wxID_ANY, wxT("100"), wxDefaultPosition, wxSize(-1, -1), 0);
00159     bSizer10->Add(m_AXText, 5, wxALL | wxALIGN_RIGHT | wxALIGN_CENTER_VERTICAL, 5);
00160
00161     bSizer9->Add(bSizer10, 0, wxEXPAND, 5);
00162
00163     wxBoxSizer* bSizer101;
00164     bSizer101 = new wxBoxSizer(wxHORIZONTAL);
00165
00166     m_staticText51 = new wxStaticText(this, wxID_ANY, wxT(""), wxDefaultPosition, wxDefaultSize, 0);
00167     m_staticText51->Wrap(-1);
00168     m_staticText51->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00169
00170     bSizer101->Add(m_staticText51, 1, wxALL | wxALIGN_CENTER_VERTICAL, 5);
00171
00172     m_ThXText = new wxTextCtrl(this, wxID_ANY, wxT("1"), wxDefaultPosition, wxDefaultSize, 0);
00173     bSizer101->Add(m_ThXText, 5, wxALL | wxALIGN_RIGHT | wxALIGN_CENTER_VERTICAL, 5);
00174
00175     bSizer9->Add(bSizer101, 0, wxEXPAND, 5);
00176
00177     wxBoxSizer* bSizer102;
00178     bSizer102 = new wxBoxSizer(wxHORIZONTAL);
00179
00180     m_staticText52 = new wxStaticText(this, wxID_ANY, wxT(""), wxDefaultPosition, wxDefaultSize, 0);
00181     m_staticText52->Wrap(-1);
00182     m_staticText52->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00183
00184     bSizer102->Add(m_staticText52, 1, wxALL | wxALIGN_CENTER_VERTICAL, 5);
00185
00186     m_PhiXText = new wxTextCtrl(this, wxID_ANY, wxT("0"), wxDefaultPosition, wxDefaultSize, 0);
00187     bSizer102->Add(m_PhiXText, 5, wxALL | wxALIGN_RIGHT | wxALIGN_CENTER_VERTICAL, 5);
00188
00189     bSizer9->Add(bSizer102, 0, wxEXPAND, 5);
00190
00191     bSizer4->Add(bSizer9, 0, wxEXPAND, 5);
00192
00193     wxBoxSizer* bSizer91;
00194     bSizer91 = new wxBoxSizer(wxVERTICAL);
00195
00196     m_staticText18 = new wxStaticText(this, wxID_ANY, wxT("Y"), wxDefaultPosition, wxDefaultSize, 0);
00197     m_staticText18->Wrap(-1);
00198     m_staticText18->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00199
00200     bSizer91->Add(m_staticText18, 0, wxALL | wxALIGN_CENTER_HORIZONTAL, 5);
00201
00202     wxBoxSizer* bSizer103;
00203     bSizer103 = new wxBoxSizer(wxHORIZONTAL);
00204
00205     m_staticText53 = new wxStaticText(this, wxID_ANY, wxT("A"), wxDefaultPosition, wxDefaultSize, 0);
00206     m_staticText53->Wrap(-1);
00207     m_staticText53->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00208
00209     bSizer103->Add(m_staticText53, 1, wxALL | wxALIGN_CENTER_VERTICAL, 5);
00210
00211     m_AYText = new wxTextCtrl(this, wxID_ANY, wxT("100"), wxDefaultPosition, wxDefaultSize, 0);
00212     bSizer103->Add(m_AYText, 5, wxALL | wxALIGN_RIGHT | wxALIGN_CENTER_VERTICAL, 5);
00213
00214     bSizer91->Add(bSizer103, 1, wxEXPAND, 5);
00215
00216     wxBoxSizer* bSizer1011;
00217     bSizer1011 = new wxBoxSizer(wxHORIZONTAL);
00218
00219     m_staticText511 = new wxStaticText(this, wxID_ANY, wxT(""), wxDefaultPosition, wxDefaultSize, 0);
00220     m_staticText511->Wrap(-1);
00221     m_staticText511->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00222
00223     bSizer1011->Add(m_staticText511, 1, wxALL | wxALIGN_CENTER_VERTICAL, 5);
00224
00225     m_ThYText = new wxTextCtrl(this, wxID_ANY, wxT("1"), wxDefaultPosition, wxDefaultSize, 0);
00226     bSizer1011->Add(m_ThYText, 5, wxALL | wxALIGN_RIGHT | wxALIGN_CENTER_VERTICAL, 5);
00227
00228     bSizer91->Add(bSizer1011, 1, wxEXPAND, 5);
00229
```

```
00230     wxBoxSizer* bSizer1021;
00231     bSizer1021 = new wxBoxSizer(wxHORIZONTAL);
00232
00233     m_staticText521 = new wxStaticText(this, wxID_ANY, wxT(""), wxDefaultPosition, wxDefaultSize, 0);
00234     m_staticText521->Wrap(-1);
00235     m_staticText521->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00236
00237     bSizer1021->Add(m_staticText521, 1, wxALL | wxALIGN_CENTER_VERTICAL, 5);
00238
00239     m_PhiYText = new wxTextCtrl(this, wxID_ANY, wxT("1.57"), wxDefaultPosition, wxDefaultSize, 0);
00240     bSizer1021->Add(m_PhiYText, 5, wxALL | wxALIGN_RIGHT | wxALIGN_CENTER_VERTICAL, 5);
00241
00242     bSizer91->Add(bSizer1021, 1, wxEXPAND, 5);
00243
00244     bSizer4->Add(bSizer91, 0, wxEXPAND, 5);
00245
00246     wxBoxSizer* bSizer92;
00247     bSizer92 = new wxBoxSizer(wxVERTICAL);
00248
00249     m_staticText4 = new wxStaticText(this, wxID_ANY, wxT("Z"), wxDefaultPosition, wxDefaultSize, 0);
00250     m_staticText4->Wrap(-1);
00251     m_staticText4->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00252
00253     bSizer92->Add(m_staticText4, 0, wxALL | wxALIGN_CENTER_HORIZONTAL, 5);
00254
00255     wxBoxSizer* bSizer104;
00256     bSizer104 = new wxBoxSizer(wxHORIZONTAL);
00257
00258     m_staticText54 = new wxStaticText(this, wxID_ANY, wxT("A"), wxDefaultPosition, wxDefaultSize, 0);
00259     m_staticText54->Wrap(-1);
00260     m_staticText54->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00261
00262     bSizer104->Add(m_staticText54, 1, wxALL | wxALIGN_CENTER_VERTICAL, 5);
00263
00264     m_AZText = new wxTextCtrl(this, wxID_ANY, wxT("100"), wxDefaultPosition, wxDefaultSize, 0);
00265     bSizer104->Add(m_AZText, 5, wxALL | wxALIGN_RIGHT | wxALIGN_CENTER_VERTICAL, 5);
00266
00267     bSizer92->Add(bSizer104, 1, wxEXPAND, 5);
00268
00269     wxBoxSizer* bSizer1012;
00270     bSizer1012 = new wxBoxSizer(wxHORIZONTAL);
00271
00272     m_staticText512 = new wxStaticText(this, wxID_ANY, wxT(""), wxDefaultPosition, wxDefaultSize, 0);
00273     m_staticText512->Wrap(-1);
00274     m_staticText512->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00275
00276     bSizer1012->Add(m_staticText512, 1, wxALL | wxALIGN_CENTER_VERTICAL, 5);
00277
00278     m_ThZText = new wxTextCtrl(this, wxID_ANY, wxT("0"), wxDefaultPosition, wxDefaultSize, 0);
00279     bSizer1012->Add(m_ThZText, 5, wxALL | wxALIGN_RIGHT | wxALIGN_CENTER_VERTICAL, 5);
00280
00281     bSizer92->Add(bSizer1012, 1, wxEXPAND, 5);
00282
00283     wxBoxSizer* bSizer1022;
00284     bSizer1022 = new wxBoxSizer(wxHORIZONTAL);
00285
00286     m_staticText522 = new wxStaticText(this, wxID_ANY, wxT(""), wxDefaultPosition, wxDefaultSize, 0);
00287     m_staticText522->Wrap(-1);
00288     m_staticText522->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00289
00290     bSizer1022->Add(m_staticText522, 1, wxALL | wxALIGN_CENTER_VERTICAL, 5);
00291
00292     m_PhiZText = new wxTextCtrl(this, wxID_ANY, wxT("0"), wxDefaultPosition, wxDefaultSize, 0);
00293     bSizer1022->Add(m_PhiZText, 5, wxALL | wxALIGN_RIGHT | wxALIGN_CENTER_VERTICAL, 5);
00294
00295     bSizer92->Add(bSizer1022, 1, wxEXPAND | wxALIGN_RIGHT, 5);
00296
00297     bSizer4->Add(bSizer92, 0, wxEXPAND, 5);
00298
00299     wxBoxSizer* bSizer27;
00300     bSizer27 = new wxBoxSizer(wxVERTICAL);
00301
00302     wxString animationBoxChoices[] = { wxT("Statyczna"), wxT("Animowana") };
00303     int animationBoxNChoices = sizeof(animationBoxChoices) / sizeof(wxString);
00304     animationBox = new wxRadioBox(this, wxID_ANY, wxT("Rodzaj animacji"), wxDefaultPosition,
      wxDefaultSize, animationBoxNChoices, animationBoxChoices, 1, wxRA_SPECIFY_COLS);
00305     animationBox->SetSelection(0);
00306     bSizer27->Add(animationBox, 0, wxALL | wxALIGN_CENTER_HORIZONTAL, 5);
00307
00308     wxString m_radioBox1Choices[] = { wxT("Linie"), wxT("Punkty") };
00309     int m_radioBox1NChoices = sizeof(m_radioBox1Choices) / sizeof(wxString);
00310     m_radioBox1 = new wxRadioBox(this, wxID_ANY, wxT("Rodzaj rysowania"), wxDefaultPosition,
```

```
    wxDefaultSize, m_radioBox1NChoices, m_radioBox1Choices, 1, wxRA_SPECIFY_COLS);
00311     m_radioBox1->SetSelection(0);
00312     m_radioBox1->SetFont(wxFont(10, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
    false, wxT("Cambria")));
00313
00314     bSizer27->Add(m_radioBox1, 0, wxALL | wxALIGN_CENTER_HORIZONTAL | wxALIGN_CENTER_VERTICAL, 5);
00315
00316     bSizer4->Add(bSizer27, 1, wxEXPAND, 5);
00317
00318     bSizer1->Add(bSizer4, 1, wxALIGN_LEFT | wxEXPAND, 5);
00319
00320     this->SetSizer(bSizer1);
00321     this->Layout();
00322
00323     this->Centre(wxBOTH);
00324
00325     //connect-y
00326     this->Connect(wxEVT_CLOSE_WINDOW, wxCloseEventHandler(MyFrame1::MainFormClose));
00327     m_DisplayWindow->Connect(wxEVT_UPDATE_UI, wxUpdateUIEventHandler(MyFrame1::DisplayPanelRepaint),
    NULL, this);
00328
00329     m_XRotationSlider->Connect(wxEVT_SCROLL_TOP, wxScrollEventHandler(MyFrame1::XRot_Updated), NULL,
    this);
00330     m_XRotationSlider->Connect(wxEVT_SCROLL_BOTTOM, wxScrollEventHandler(MyFrame1::XRot_Updated),
    NULL, this);
00331     m_XRotationSlider->Connect(wxEVT_SCROLL_LINEUP, wxScrollEventHandler(MyFrame1::XRot_Updated),
    NULL, this);
00332     m_XRotationSlider->Connect(wxEVT_SCROLL_LINEDOWN, wxScrollEventHandler(MyFrame1::XRot_Updated),
    NULL, this);
00333     m_XRotationSlider->Connect(wxEVT_SCROLL_PAGEUP, wxScrollEventHandler(MyFrame1::XRot_Updated),
    NULL, this);
00334     m_XRotationSlider->Connect(wxEVT_SCROLL_PAGEDOWN, wxScrollEventHandler(MyFrame1::XRot_Updated),
    NULL, this);
00335     m_XRotationSlider->Connect(wxEVT_SCROLL_THUMBTRACK, wxScrollEventHandler(MyFrame1::XRot_Updated),
    NULL, this);
00336     m_XRotationSlider->Connect(wxEVT_SCROLL_THUMBRELEASE,
    wxScrollEventHandler(MyFrame1::XRot_Updated), NULL, this);
00337     m_XRotationSlider->Connect(wxEVT_SCROLL_CHANGED, wxScrollEventHandler(MyFrame1::XRot_Updated),
    NULL, this);
00338     m_YRotationSlider->Connect(wxEVT_SCROLL_TOP, wxScrollEventHandler(MyFrame1::YRot_Updated), NULL,
    this);
00339     m_YRotationSlider->Connect(wxEVT_SCROLL_BOTTOM, wxScrollEventHandler(MyFrame1::YRot_Updated),
    NULL, this);
00340     m_YRotationSlider->Connect(wxEVT_SCROLL_LINEUP, wxScrollEventHandler(MyFrame1::YRot_Updated),
    NULL, this);
00341     m_YRotationSlider->Connect(wxEVT_SCROLL_LINEDOWN, wxScrollEventHandler(MyFrame1::YRot_Updated),
    NULL, this);
00342     m_YRotationSlider->Connect(wxEVT_SCROLL_PAGEUP, wxScrollEventHandler(MyFrame1::YRot_Updated),
    NULL, this);
00343     m_YRotationSlider->Connect(wxEVT_SCROLL_PAGEDOWN, wxScrollEventHandler(MyFrame1::YRot_Updated),
    NULL, this);
00344     m_YRotationSlider->Connect(wxEVT_SCROLL_THUMBTRACK, wxScrollEventHandler(MyFrame1::YRot_Updated),
    NULL, this);
00345     m_YRotationSlider->Connect(wxEVT_SCROLL_THUMBRELEASE,
    wxScrollEventHandler(MyFrame1::YRot_Updated), NULL, this);
00346     m_YRotationSlider->Connect(wxEVT_SCROLL_CHANGED, wxScrollEventHandler(MyFrame1::YRot_Updated),
    NULL, this);
00347     m_ZRotationSlider->Connect(wxEVT_SCROLL_TOP, wxScrollEventHandler(MyFrame1::ZRot_Updated), NULL,
    this);
00348     m_ZRotationSlider->Connect(wxEVT_SCROLL_BOTTOM, wxScrollEventHandler(MyFrame1::ZRot_Updated),
    NULL, this);
00349     m_ZRotationSlider->Connect(wxEVT_SCROLL_LINEUP, wxScrollEventHandler(MyFrame1::ZRot_Updated),
    NULL, this);
00350     m_ZRotationSlider->Connect(wxEVT_SCROLL_LINEDOWN, wxScrollEventHandler(MyFrame1::ZRot_Updated),
    NULL, this);
00351     m_ZRotationSlider->Connect(wxEVT_SCROLL_PAGEUP, wxScrollEventHandler(MyFrame1::ZRot_Updated),
    NULL, this);
00352     m_ZRotationSlider->Connect(wxEVT_SCROLL_PAGEDOWN, wxScrollEventHandler(MyFrame1::ZRot_Updated),
    NULL, this);
00353     m_ZRotationSlider->Connect(wxEVT_SCROLL_THUMBTRACK, wxScrollEventHandler(MyFrame1::ZRot_Updated),
    NULL, this);
00354     m_ZRotationSlider->Connect(wxEVT_SCROLL_THUMBRELEASE,
    wxScrollEventHandler(MyFrame1::ZRot_Updated), NULL, this);
00355     m_ZRotationSlider->Connect(wxEVT_SCROLL_CHANGED, wxScrollEventHandler(MyFrame1::ZRot_Updated),
    NULL, this);
00356
00357     m_AXText->Connect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::XA_Updated), NULL,
    this);
00358     m_AYText->Connect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::YA_Updated), NULL,
    this);
00359     m_AZText->Connect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::ZA_Updated), NULL,
    this);
00360
00361     m_ThXText->Connect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::XTheta_Updated),
    NULL, this);
00362     m_ThYText->Connect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::YTheta_Updated),
    NULL, this);
```

```
00363     m_ThZText->Connect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::ZTheta_Updated),
      NULL, this);
00364
00365     m_PhiXText->Connect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::XPhi_Updated),
      NULL, this);
00366     m_PhiYText->Connect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::YPhi_Updated),
      NULL, this);
00367     m_PhiZText->Connect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::ZPhi_Updated),
      NULL, this);
00368
00369     m_radioBox1->Connect(wxEVT_COMMAND_RADIOBOX_SELECTED,
      wxCommandEventHandler(MyFrame1::DotsLines_Updated), NULL, this);
00370     animationBox->Connect(wxEVT_COMMAND_RADIOBOX_SELECTED,
      wxCommandEventHandler(MyFrame1::Animation_Updated), NULL, this);
00371     ParamBox->Connect(wxEVT_COMMAND_RADIOBOX_SELECTED,
      wxCommandEventHandler(MyFrame1::ParamType_Updated), NULL, this);
00372
00373     m_timer.Start(10);
00374 }
```

4.6.2.2 ~MyFrame1()

```
MyFrame1::~MyFrame1 ( )
```

Default destructor. Disconnects all of the events handlers.

Definition at line 376 of file Window.cpp.

```
00377 {
00378     //disconnect-y
00379     this->Disconnect(wxEVT_CLOSE_WINDOW, wxCloseEventHandler(MyFrame1::MainFormClose));
00380     m_DisplayWindow->Disconnect(wxEVT_UPDATE_UI,
      wxUpdateUIEventHandler(MyFrame1::DisplayPanelRepaint), NULL, this);
00381
00382     m_XRotationSlider->Disconnect(wxEVT_SCROLL_TOP, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00383     m_XRotationSlider->Disconnect(wxEVT_SCROLL_BOTTOM, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00384     m_XRotationSlider->Disconnect(wxEVT_SCROLL_LINEUP, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00385     m_XRotationSlider->Disconnect(wxEVT_SCROLL_LINEDOWN, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00386     m_XRotationSlider->Disconnect(wxEVT_SCROLL_PAGEUP, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00387     m_XRotationSlider->Disconnect(wxEVT_SCROLL_PAGEDOWN, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00388     m_XRotationSlider->Disconnect(wxEVT_SCROLL_THUMBTRACK,
      wxScrollEventHandler(MyFrame1::XRot_Updated), NULL, this);
00389     m_XRotationSlider->Disconnect(wxEVT_SCROLL_THUMBRELEASE,
      wxScrollEventHandler(MyFrame1::XRot_Updated), NULL, this);
00390     m_XRotationSlider->Disconnect(wxEVT_SCROLL_CHANGED, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00391
00392     m_YRotationSlider->Disconnect(wxEVT_SCROLL_TOP, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00393     m_YRotationSlider->Disconnect(wxEVT_SCROLL_BOTTOM, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00394     m_YRotationSlider->Disconnect(wxEVT_SCROLL_LINEUP, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00395     m_YRotationSlider->Disconnect(wxEVT_SCROLL_LINEDOWN, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00396     m_YRotationSlider->Disconnect(wxEVT_SCROLL_PAGEUP, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00397     m_YRotationSlider->Disconnect(wxEVT_SCROLL_PAGEDOWN, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00398     m_YRotationSlider->Disconnect(wxEVT_SCROLL_THUMBTRACK,
      wxScrollEventHandler(MyFrame1::YRot_Updated), NULL, this);
00399     m_YRotationSlider->Disconnect(wxEVT_SCROLL_THUMBRELEASE,
      wxScrollEventHandler(MyFrame1::YRot_Updated), NULL, this);
00400     m_YRotationSlider->Disconnect(wxEVT_SCROLL_CHANGED, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00401
00402     m_ZRotationSlider->Disconnect(wxEVT_SCROLL_TOP, wxScrollEventHandler(MyFrame1::ZRot_Updated),
      NULL, this);
00403     m_ZRotationSlider->Disconnect(wxEVT_SCROLL_BOTTOM, wxScrollEventHandler(MyFrame1::ZRot_Updated),
      NULL, this);
00404     m_ZRotationSlider->Disconnect(wxEVT_SCROLL_LINEUP, wxScrollEventHandler(MyFrame1::ZRot_Updated),
      NULL, this);
```

```
00405     m_ZRotationSlider->Disconnect(wxEVT_SCROLL_LINEDOWN, wxScrollEventHandler(MyFrame1::ZRot_Updated),
       NULL, this);
00406     m_ZRotationSlider->Disconnect(wxEVT_SCROLL_PAGEUP, wxScrollEventHandler(MyFrame1::ZRot_Updated),
       NULL, this);
00407     m_ZRotationSlider->Disconnect(wxEVT_SCROLL_PAGEDOWN, wxScrollEventHandler(MyFrame1::ZRot_Updated),
       NULL, this);
00408     m_ZRotationSlider->Disconnect(wxEVT_SCROLL_THUMBTRACK,
       wxScrollEventHandler(MyFrame1::ZRot_Updated), NULL, this);
00409     m_ZRotationSlider->Disconnect(wxEVT_SCROLL_THUMBRELEASE,
       wxScrollEventHandler(MyFrame1::ZRot_Updated), NULL, this);
00410     m_ZRotationSlider->Disconnect(wxEVT_SCROLL_CHANGED, wxScrollEventHandler(MyFrame1::ZRot_Updated),
       NULL, this);
00411
00412     m_AXText->Disconnect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::XA_Updated),
       NULL, this);
00413     m_AYText->Disconnect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::YA_Updated),
       NULL, this);
00414     m_AZText->Disconnect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::ZA_Updated),
       NULL, this);
00415
00416     m_ThXText->Disconnect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::XTheta_Updated),
       NULL, this);
00417     m_ThYText->Disconnect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::YTheta_Updated),
       NULL, this);
00418     m_ThZText->Disconnect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::ZTheta_Updated),
       NULL, this);
00419
00420     m_PhiXText->Disconnect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::XPhi_Updated),
       NULL, this);
00421     m_PhiYText->Disconnect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::YPhi_Updated),
       NULL, this);
00422     m_PhiZText->Disconnect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::ZPhi_Updated),
       NULL, this);
00423
00424     m_radioBox1->Disconnect(wxEVT_COMMAND_RADIOBOX_SELECTED,
       wxCommandEventHandler(MyFrame1::DotsLines_Updated), NULL, this);
00425     animationBox->Disconnect(wxEVT_COMMAND_RADIOBOX_SELECTED,
       wxCommandEventHandler(MyFrame1::Animation_Updated), NULL, this);
00426     ParamBox->Disconnect(wxEVT_COMMAND_RADIOBOX_SELECTED,
       wxCommandEventHandler(MyFrame1::ParamType_Updated), NULL, this);
00427 }
```

4.6.3 Member Function Documentation

4.6.3.1 Animation_Updated()

```
virtual void MyFrame1::Animation_Updated (
            wxCommandEvent & event )  [inline], [protected], [virtual]
```

a pure virtual member.

Parameters

event	is a wxCommandEvent

Reimplemented in GUIMyFrame.

Definition at line 163 of file Window.h.

```
00163 { event.Skip(); }
```

4.6.3.2 AnimationBreak()

```
virtual void MyFrame1::AnimationBreak (
            wxCommandEvent & event )  [inline], [protected], [virtual]
```

a pure virtual member.

Parameters

event	is a wxCommandEvent

Definition at line 168 of file Window.h.

```
00168 { event.Skip(); }
```

4.6.3.3 DisplayPanelRepaint()

```
virtual void MyFrame1::DisplayPanelRepaint (
            wxUpdateUIEvent & event )  [inline], [protected], [virtual]
```

a pure virtual member.

Parameters

event	is a wxUpdateUIEvent

Reimplemented in GUIMyFrame.

Definition at line 83 of file Window.h.

```
00083 { event.Skip(); }
```

4.6.3.4 DotsLines_Updated()

```
virtual void MyFrame1::DotsLines_Updated (
            wxCommandEvent & event )  [inline], [protected], [virtual]
```

a pure virtual member.

Parameters

event	is a wxCommandEvent

Reimplemented in GUIMyFrame.

Definition at line 158 of file Window.h.

```
00158 { event.Skip(); }
```

4.6.3.5 MainFormClose()

```
virtual void MyFrame1::MainFormClose (
            wxCloseEvent & event )  [inline], [protected], [virtual]
```

a pure virtual member.

phi, z axis value textctrl

Parameters

event	is a wxCloseEvent

Reimplemented in GUIMyFrame.

Definition at line 78 of file Window.h.

```
00078 { event.Skip(); }
```

4.6.3.6 ParamType_Updated()

```
virtual void MyFrame1::ParamType_Updated (
            wxCommandEvent & event )  [inline], [protected], [virtual]
```

a pure virtual member.

Parameters

event	is a wxCommandEvent

Reimplemented in GUIMyFrame.

Definition at line 173 of file Window.h.

```
00173 { event.Skip(); }
```

4.6.3.7 Scrolls_Updated()

```
virtual void MyFrame1::Scrolls_Updated (
            wxScrollEvent & event )  [inline], [protected], [virtual]
```

a pure virtual member.

Parameters

event	is a wxScrollEvent

Definition at line 88 of file Window.h.

```
00088 { event.Skip(); }
```

4.6.3.8 XA_Updated()

```
virtual void MyFrame1::XA_Updated (
            wxCommandEvent & event )  [inline], [protected], [virtual]
```

a pure virtual member.

Parameters

event	is a wxCommandEvent

Reimplemented in GUIMyFrame.

Definition at line 110 of file Window.h.

```
00110 { event.Skip(); }
```

4.6.3.9 XPhi_Updated()

```
virtual void MyFrame1::XPhi_Updated (
            wxCommandEvent & event )  [inline], [protected], [virtual]
```

a pure virtual member.

Parameters

event	is a wxCommandEvent

Reimplemented in GUIMyFrame.

Definition at line 142 of file Window.h.

```
00142 { event.Skip(); }
```

4.6.3.10 XRot_Updated()

```
virtual void MyFrame1::XRot_Updated (
            wxScrollEvent & event )  [inline], [protected], [virtual]
```

a pure virtual member.

Parameters

event	is a wxScrollEvent

Reimplemented in GUIMyFrame.

Definition at line 94 of file Window.h.
```
00094 { event.Skip(); }
```

4.6.3.11 XTheta_Updated()

```
virtual void MyFrame1::XTheta_Updated (
            wxCommandEvent & event )  [inline], [protected], [virtual]
```

a pure virtual member.

Parameters

event	is a wxCommandEvent

Reimplemented in GUIMyFrame.

Definition at line 126 of file Window.h.
```
00126 { event.Skip(); }
```

4.6.3.12 YA_Updated()

```
virtual void MyFrame1::YA_Updated (
            wxCommandEvent & event )  [inline], [protected], [virtual]
```

a pure virtual member.

Parameters

event	is a wxCommandEvent

Reimplemented in GUIMyFrame.

Definition at line 115 of file Window.h.
```
00115 { event.Skip(); }
```

4.6.3.13 YPhi_Updated()

```
virtual void MyFrame1::YPhi_Updated (
            wxCommandEvent & event )  [inline], [protected], [virtual]
```

a pure virtual member.

Parameters

event	is a wxCommandEvent

Reimplemented in GUIMyFrame.

Definition at line 147 of file Window.h.

```
00147 { event.Skip(); }
```

4.6.3.14 YRot_Updated()

```
virtual void MyFrame1::YRot_Updated (
            wxScrollEvent & event )  [inline], [protected], [virtual]
```

a pure virtual member.

Parameters

event	is a wxScrollEvent

Reimplemented in GUIMyFrame.

Definition at line 99 of file Window.h.

```
00099 { event.Skip(); }
```

4.6.3.15 YTheta_Updated()

```
virtual void MyFrame1::YTheta_Updated (
            wxCommandEvent & event )  [inline], [protected], [virtual]
```

a pure virtual member.

Parameters

event	is a wxCommandEvent

Reimplemented in GUIMyFrame.

Definition at line 131 of file Window.h.

```
00131 { event.Skip(); }
```

4.6.3.16 ZA_Updated()

```
virtual void MyFrame1::ZA_Updated (
            wxCommandEvent & event )  [inline], [protected], [virtual]
```

a pure virtual member.

Parameters

event	is a wxCommandEvent

Reimplemented in GUIMyFrame.

Definition at line 120 of file Window.h.

```
00120 { event.Skip(); }
```

4.6.3.17 ZPhi_Updated()

```
virtual void MyFrame1::ZPhi_Updated (
            wxCommandEvent & event )  [inline], [protected], [virtual]
```

a pure virtual member.

Parameters

event	is a wxCommandEvent

Reimplemented in GUIMyFrame.

Definition at line 152 of file Window.h.

```
00152 { event.Skip(); }
```

4.6.3.18 ZRot_Updated()

```
virtual void MyFrame1::ZRot_Updated (
            wxScrollEvent & event )  [inline], [protected], [virtual]
```

a pure virtual member.

Parameters

event	is a wxScrollEvent

Reimplemented in GUIMyFrame.

Definition at line 104 of file Window.h.

```
00104 { event.Skip(); }
```

4.6.3.19 ZTheta_Updated()

```
virtual void MyFrame1::ZTheta_Updated (
            wxCommandEvent & event )  [inline], [protected], [virtual]
```

a pure virtual member.

Parameters

event	is a wxCommandEvent

Reimplemented in GUIMyFrame.

Definition at line 136 of file Window.h.

```
00136 { event.Skip(); }
```

4.6.4 Friends And Related Function Documentation

4.6.4.1 GUIMyFrame

```
friend class GUIMyFrame  [friend]
```

Definition at line 38 of file Window.h.

4.6.5 Member Data Documentation

4.6.5.1 animationBox

```
wxRadioBox* MyFrame1::animationBox  [protected]
```

Z rotation slider

Definition at line 60 of file Window.h.

4.6.5.2 m_AXText

```
wxTextCtrl* MyFrame1::m_AXText  [protected]
```

adiobox: cartesian or polar coordinates curve

Definition at line 63 of file Window.h.

4.6.5.3 m_AYText

```
wxTextCtrl* MyFrame1::m_AYText  [protected]
```

phi, x axis value textctrl

Definition at line 66 of file Window.h.

4.6.5.4 m_AZText

```
wxTextCtrl* MyFrame1::m_AZText  [protected]
```

phi, y axis value textctrl

Definition at line 69 of file Window.h.

4.6.5.5 m_DisplayWindow

```
wxPanel* MyFrame1::m_DisplayWindow
```

Definition at line 178 of file Window.h.

4.6.5.6 m_PhiXText

```
wxTextCtrl* MyFrame1::m_PhiXText  [protected]
```

theta, x axis value textctrl

Definition at line 65 of file Window.h.

4.6.5.7 m_PhiYText

```
wxTextCtrl* MyFrame1::m_PhiYText  [protected]
```

theta, y axis value textctrl

Definition at line 68 of file Window.h.

4.6.5.8 m_PhiZText

```
wxTextCtrl* MyFrame1::m_PhiZText  [protected]
```

theta, z axis value textctrl

Definition at line 71 of file Window.h.

4.6.5.9 m_radioBox1

```
wxRadioBox* MyFrame1::m_radioBox1  [protected]
```

radiobox: animated or static curve

Definition at line 61 of file Window.h.

4.6.5.10 m_staticText17

```
wxStaticText* MyFrame1::m_staticText17  [protected]
```

Z axis text rotation

Definition at line 44 of file Window.h.

4.6.5.11 m_staticText18

```
wxStaticText* MyFrame1::m_staticText18  [protected]
```

phi parameter text X axis

Definition at line 49 of file Window.h.

4.6.5.12 m_staticText19

```
wxStaticText* MyFrame1::m_staticText19  [protected]
```

parameters text

Definition at line 45 of file Window.h.

4.6.5.13 m_staticText20

```
wxStaticText* MyFrame1::m_staticText20  [protected]
```

Definition at line 40 of file Window.h.

4.6.5.14 m_staticText21

```
wxStaticText* MyFrame1::m_staticText21  [protected]
```

rotation text

Definition at line 41 of file Window.h.

4.6.5.15 m_staticText22

```
wxStaticText* MyFrame1::m_staticText22  [protected]
```

X axis text rotation

Definition at line 42 of file Window.h.

4.6.5.16 m_staticText23

```
wxStaticText* MyFrame1::m_staticText23  [protected]
```

Y axis text rotation

Definition at line 43 of file Window.h.

4.6.5.17 m_staticText4

```
wxStaticText* MyFrame1::m_staticText4  [protected]
```

phi parameter text Y axis

Definition at line 53 of file Window.h.

4.6.5.18 m_staticText5

```
wxStaticText* MyFrame1::m_staticText5  [protected]
```

X axis text parameters

Definition at line 46 of file Window.h.

4.6.5.19 m_staticText51

```
wxStaticText* MyFrame1::m_staticText51  [protected]
```

A parameter text X axis

Definition at line 47 of file Window.h.

4.6.5.20 m_staticText511

```
wxStaticText* MyFrame1::m_staticText511  [protected]
```

A parameter text Y axis

Definition at line 51 of file Window.h.

4.6.5.21 m_staticText512

```
wxStaticText* MyFrame1::m_staticText512  [protected]
```

A parameter text Z axis

Definition at line 55 of file Window.h.

4.6.5.22 m_staticText52

```
wxStaticText* MyFrame1::m_staticText52  [protected]
```

theta parameter text X axis

Definition at line 48 of file Window.h.

4.6.5.23 m_staticText521

```
wxStaticText* MyFrame1::m_staticText521  [protected]
```

theta parameter text Y axis

Definition at line 52 of file Window.h.

4.6.5.24 m_staticText522

```
wxStaticText* MyFrame1::m_staticText522  [protected]
```

theta parameter text Z axis

Definition at line 56 of file Window.h.

4.6.5.25 m_staticText53

```
wxStaticText* MyFrame1::m_staticText53  [protected]
```

Y axis text parameters

Definition at line 50 of file Window.h.

4.6.5.26 m_staticText54

```
wxStaticText* MyFrame1::m_staticText54  [protected]
```

Y axis text parameters

Definition at line 54 of file Window.h.

4.6.5.27 m_ThXText

```
wxTextCtrl* MyFrame1::m_ThXText  [protected]
```

A, x axis value textctrl

Definition at line 64 of file Window.h.

4.6.5.28 m_ThYText

```
wxTextCtrl* MyFrame1::m_ThYText  [protected]
```

A, y axis value textctrl

Definition at line 67 of file Window.h.

4.6.5.29 m_ThZText

```
wxTextCtrl* MyFrame1::m_ThZText  [protected]
```

A, z axis value textctrl

Definition at line 70 of file Window.h.

4.6.5.30 m_timer

```
wxTimer MyFrame1::m_timer  [protected]
```

Definition at line 175 of file Window.h.

4.6.5.31 m_XRotationSlider

```
wxSlider* MyFrame1::m_XRotationSlider  [protected]
```

phi parameter text Z axis

Definition at line 57 of file Window.h.

4.6.5.32 m_YRotationSlider

```
wxSlider* MyFrame1::m_YRotationSlider  [protected]
```

X rotation slider

Definition at line 58 of file Window.h.

4.6.5.33 m_ZRotationSlider

```
wxSlider* MyFrame1::m_ZRotationSlider  [protected]
```

Y rotation slider

Definition at line 59 of file Window.h.

4.6.5.34 ParamBox

```
wxRadioBox* MyFrame1::ParamBox  [protected]
```

radiobox: lines or dots curve

Definition at line 62 of file Window.h.

The documentation for this class was generated from the following files:

- include/Window.h
- src/Window.cpp

4.7 Vector4 Class Reference

a vector class.

```
#include <vecmat.h>
```

Public Member Functions

- Vector4 ()
- void Print (void)
- void Set (double d1, double d2, double d3)
- double GetX ()
- double GetY ()
- double GetZ ()
- Vector4 operator- (const Vector4 &)

Public Attributes

- double data [4]

Friends

- Vector4 operator* (const Vector4 &, double)

4.7.1 Detailed Description

a vector class.

Definition at line 13 of file vecmat.h.

4.7.2 Constructor & Destructor Documentation

4.7.2.1 Vector4()

```
Vector4::Vector4 ( )
```

Definition at line 3 of file vecmat.cpp.

```
00004 {
00005     data[0] = 0.0; data[1] = 0.0; data[2] = 0.0; data[3] = 1.0;
00006 }
```

4.7.3 Member Function Documentation

4.7.3.1 GetX()

```
double Vector4::GetX ( )
```

Definition at line 18 of file vecmat.cpp.

```
00019 {
00020     return data[0];
00021 }
```

4.7.3.2 GetY()

```
double Vector4::GetY ( )
```

Definition at line 23 of file vecmat.cpp.

```
00024 {
00025     return data[1];
00026 }
```

4.7.3.3 GetZ()

```
double Vector4::GetZ ( )
```

Definition at line 28 of file vecmat.cpp.

```
00029 {
00030     return data[2];
00031 }
```

4.7.3.4 operator-()

```
Vector4 Vector4::operator- (
            const Vector4 & gVector )
```

Definition at line 33 of file vecmat.cpp.

```
00034 {
00035     unsigned int i;
00036     Vector4 Result;
00037     for (i = 0; i < 4; i++) Result.data[i] = data[i] - gVector.data[i];
00038     return Result;
00039 }
```

4.7.3.5 Print()

```
void Vector4::Print (
            void  )
```

Definition at line 8 of file vecmat.cpp.

```
00009 {
00010     printf("(%2.3lf,%2.3lf,%2.3lf,%2.3lf)\n", data[0], data[1], data[2], data[3]);
00011 }
```

4.7.3.6 Set()

```
void Vector4::Set (
            double d1,
            double d2,
            double d3 )
```

Definition at line 13 of file vecmat.cpp.

```
00014 {
00015     data[0] = d1; data[1] = d2; data[2] = d3;
00016 }
```

4.7.4 Friends And Related Function Documentation

4.7.4.1 operator*

```
Vector4 operator* (
            const Vector4 & gVector,
            double val )  [friend]
```

Definition at line 41 of file vecmat.cpp.

```
00042 {
00043     unsigned int i;
00044     Vector4 Result;
00045     for (i = 0; i < 4; i++) Result.data[i] = gVector.data[i] * val;
00046     return Result;
00047 }
```

4.7.5 Member Data Documentation

4.7.5.1 data

```
double Vector4::data[4]
```

Definition at line 16 of file vecmat.h.

The documentation for this class was generated from the following files:

- include/vecmat.h
- src/vecmat.cpp

Chapter 5

File Documentation

5.1 include/ChartClass.h File Reference

A file containing ChartClass class.

```
#include <memory>
#include "ConfigClass.h"
#include <wx/utils.h>
#include <wx/timer.h>
#include <vector>
```

Classes

- class ChartClass

  Contains the method that draws the curve.

Functions

- double min (const double a, const double b, const double c)

  a normal function taking three values, returning a double value

5.1.1 Detailed Description

A file containing ChartClass class.

Definition in file ChartClass.h.

5.1.2 Function Documentation

5.1.2.1 min()

```
double min (
            const double a,
            const double b,
            const double c )
```

a normal function taking three values, returning a double value

Parameters

a	a const double value
b	a const double value
c	a const double value

Returns

the smallest value of the three parameters

Definition at line 158 of file ChartClass.cpp.

```
00159 {
00160     double min = a;
00161     if (b < min && b != 0) min = b;
00162     if (c < min && c != 0) min = c;
00163     return min;
00164 }
```

5.2 ChartClass.h

Go to the documentation of this file.

```
00001 #pragma once
00002 #include <memory>
00003 #include "ConfigClass.h"
00004 #include <wx/utils.h>
00005 #include <wx/timer.h>
00006 #include <vector>
00007
00016 class ChartClass
00017 {
00018 private:
00019     std::shared_ptr<ConfigClass> cfg;
00020 public:
00025     ChartClass(std::shared_ptr<ConfigClass> c);
00032     void Draw(wxDC* dc, int w, int h);
00033     wxTimer timer;
00034 };
00035
00043 double min(const double a, const double b, const double c);
```

5.3 include/ConfigClass.h File Reference

A file containing ConfigClass.

```
#include "GUIMyFrame.h"
```

Classes

- class ConfigClass

  Contains curve parameters, variables describing how the curve is being drawn and related methods.

5.3.1 Detailed Description

A file containing ConfigClass.

Definition in file ConfigClass.h.

5.4 ConfigClass.h

Go to the documentation of this file.

```
00001 #pragma once
00002 #pragma warning(disable: 4996)
00003 #include "GUIMyFrame.h"
00011 class ConfigClass
00012 {
00013 protected:
00014     GUIMyFrame* MainWindow;
00015     double X_A, Y_A, Z_A;
00016     double X_theta, Y_theta, Z_theta;
00017     double X_phi, Y_phi, Z_phi;
00018     double X_Rot, Y_Rot, Z_Rot;
00019     double x, y, z;
00020     double R;
00021     bool animation;
00022     bool points;
00023     bool polar;
00024
00025 public:
00026     ConfigClass(GUIMyFrame* wnd);
00027
00032     bool get_Points() { return points; }
00037     bool get_Animation() { return animation; }
00038
00043     bool get_Polar() { return  polar; };
00048     double getX_A() { return  X_A; };
00053     double getY_A() { return  Y_A; };
00058     double getZ_A() { return  Z_A; };
00059
00064     double getX_theta() { return  X_theta; };
00069     double getY_theta() { return  Y_theta; };
00074     double getZ_theta() { return  Z_theta; };
00075
00080     double getX_phi() { return  X_phi; };
00085     double getY_phi() { return  Y_phi; };
00090     double getZ_phi() { return  Z_phi; };
00091
00096     double getX_Rot() { return  X_Rot; };
00101     double getY_Rot() { return  Y_Rot; };
00106     double getZ_Rot() { return  Z_Rot; };
00107
00112     double getR() { return R; };
00113
00118     void Set_Points(bool a) { points = a; }
00123     void Set_Animation(bool a) { animation = a; }
00128     void Set_ParamType(bool a) { polar = a; }
00129
00134     void SetX_Rot(int a) { X_Rot = a; }
00139     void SetY_Rot(int a) { Y_Rot = a; }
00144     void SetZ_Rot(int a) { Z_Rot = a; }
00145
00150     void SetX_A(double a) { X_A = a; };
00155     void SetY_A(double a) { Y_A = a; };
00160     void SetZ_A(double a) { Z_A = a; };
00161
00166     void SetX_theta(double theta) { X_theta = theta; };
00171     void SetY_theta(double theta) { Y_theta = theta; };
00176     void SetZ_theta(double theta) { Z_theta = theta; };
00177
00182     void SetX_phi(double phi) { X_phi = phi; };
00187     void SetY_phi(double phi) { Y_phi = phi; };
00192     void SetZ_phi(double phi) { Z_phi = phi; };
00193
00198     void SetR(double nR) { R = nR; };
00199
00200 };
```

5.5 include/GUIMyFrame.h File Reference

A file containing GUYMyFrame class.

```
#include "Window.h"
#include <wx/filedlg.h>
#include <wx/dcmemory.h>
```

```
#include <wx/dcclient.h>
#include <wx/dcbuffer.h>
#include <wx/colourdata.h>
#include <wx/colordlg.h>
#include <memory>
```

Classes

- class GUIMyFrame

  Derived class of MyFrame1, with methods that edit the curve.

5.5.1 Detailed Description

A file containing GUYMyFrame class.

Definition in file GUIMyFrame.h.

5.6 GUIMyFrame.h

Go to the documentation of this file.

```
00001 #pragma once
00002 #include "Window.h"
00003 #include <wx/filedlg.h>
00004 #include <wx/dcmemory.h>
00005 #include <wx/dcclient.h>
00006 #include <wx/dcbuffer.h>
00007 #include <wx/colourdata.h>
00008 #include <wx/colordlg.h>
00009 #include <memory>
00014 class ConfigClass;
00015
00019 class GUIMyFrame : public MyFrame1
00020 {
00021 protected:
00026     void MainFormClose(wxCloseEvent& event);
00031     void DisplayPanelRepaint(wxUpdateUIEvent& event);
00032
00037     void XRot_Updated(wxScrollEvent& event);
00042     void YRot_Updated(wxScrollEvent& event);
00047     void ZRot_Updated(wxScrollEvent& event);
00048
00053     void XA_Updated(wxCommandEvent& event);
00058     void YA_Updated(wxCommandEvent& event);
00063     void ZA_Updated(wxCommandEvent& event);
00064
00069     void XTheta_Updated(wxCommandEvent& event);
00074     void YTheta_Updated(wxCommandEvent& event);
00079     void ZTheta_Updated(wxCommandEvent& event);
00080
00085     void XPhi_Updated(wxCommandEvent& event);
00090     void YPhi_Updated(wxCommandEvent& event);
00095     void ZPhi_Updated(wxCommandEvent& event);
00096
00101     void DotsLines_Updated(wxCommandEvent& event);
00106     void Animation_Updated(wxCommandEvent& event);
00111     void ParamType_Updated(wxCommandEvent& event);
00112
00113 public:
00118     GUIMyFrame(wxWindow* parent);
00122     void Repaint();
00126     ~GUIMyFrame();
00127     std::shared_ptr<ConfigClass> cfg;
00128     friend class ChartClass;
00129 };
```

5.7 include/vecmat.h File Reference

A file containing Vector4 and Matrix4 classes.

```
#include <stdio.h>
```

Classes

- class Vector4

  a vector class.
- class Matrix4

  a matrix class.

5.7.1 Detailed Description

A file containing Vector4 and Matrix4 classes.

Definition in file vecmat.h.

5.8 vecmat.h

Go to the documentation of this file.

```
00001 #pragma once
00002 //Extremely simple vector and matrix classes by Janusz Malinowski.
00003 #include <stdio.h>
00004 #pragma once
00005
00013 class Vector4
00014 {
00015 public:
00016     double data[4];
00017     Vector4();
00018     void Print(void);
00019     void Set(double d1, double d2, double d3);
00020     double GetX();
00021     double GetY();
00022     double GetZ();
00023     Vector4 operator-(const Vector4&);
00024     friend Vector4 operator*(const Vector4&, double);
00025 };
00026
00030 class Matrix4
00031 {
00032 public:
00033     double data[4][4];
00034     Matrix4();
00035     void Print(void);
00036     Matrix4 operator*(const Matrix4);
00037     friend Vector4 operator*(const Matrix4, const Vector4);
00038 };
```

5.9 include/Window.h File Reference

A file containing MyFrame1 class.

```
#include <wx/artprov.h>
#include <wx/xrc/xmlres.h>
#include <wx/panel.h>
#include <wx/gdicmn.h>
#include <wx/font.h>
#include <wx/colour.h>
#include <wx/settings.h>
#include <wx/string.h>
#include <wx/sizer.h>
#include <wx/stattext.h>
#include <wx/slider.h>
#include <wx/textctrl.h>
#include <wx/radiobox.h>
#include <wx/frame.h>
#include <wx/timer.h>
```

Classes

- class MyFrame1

  Class MyFrame1.

5.9.1 Detailed Description

A file containing MyFrame1 class.

Definition in file Window.h.

5.10 Window.h

Go to the documentation of this file.

```
00001
00002 // C++ code generated with wxFormBuilder (version 3.10.1-0-g8feb16b3)
00003 // http://www.wxformbuilder.org/
00004 //
00005 // PLEASE DO *NOT* EDIT THIS FILE!
00007
00008 #pragma once
00009
00010 #include <wx/artprov.h>
00011 #include <wx/xrc/xmlres.h>
00012 #include <wx/panel.h>
00013 #include <wx/gdicmn.h>
00014 #include <wx/font.h>
00015 #include <wx/colour.h>
00016 #include <wx/settings.h>
00017 #include <wx/string.h>
00018 #include <wx/sizer.h>
00019 #include <wx/stattext.h>
00020 #include <wx/slider.h>
00021 #include <wx/textctrl.h>
00022 #include <wx/radiobox.h>
00023 #include <wx/frame.h>
00024 #include <wx/timer.h>
00025
00033
```

```
00036 class MyFrame1 : public wxFrame
00037 {
00038     friend class GUIMyFrame;
00039 protected:
00040     wxStaticText* m_staticText20;
00041     wxStaticText* m_staticText21;
00042     wxStaticText* m_staticText22;
00043     wxStaticText* m_staticText23;
00044     wxStaticText* m_staticText17;
00045     wxStaticText* m_staticText19;
00046     wxStaticText* m_staticText5;
00047     wxStaticText* m_staticText51;
00048     wxStaticText* m_staticText52;
00049     wxStaticText* m_staticText18;
00050     wxStaticText* m_staticText53;
00051     wxStaticText* m_staticText511;
00052     wxStaticText* m_staticText521;
00053     wxStaticText* m_staticText4;
00054     wxStaticText* m_staticText54;
00055     wxStaticText* m_staticText512;
00056     wxStaticText* m_staticText522;
00057     wxSlider* m_XRotationSlider;
00058     wxSlider* m_YRotationSlider;
00059     wxSlider* m_ZRotationSlider;
00060     wxRadioBox* animationBox;
00061     wxRadioBox* m_radioBox1;
00062     wxRadioBox* ParamBox;
00063     wxTextCtrl* m_AXText;
00064     wxTextCtrl* m_ThXText;
00065     wxTextCtrl* m_PhiXText;
00066     wxTextCtrl* m_AYText;
00067     wxTextCtrl* m_ThYText;
00068     wxTextCtrl* m_PhiYText;
00069     wxTextCtrl* m_AZText;
00070     wxTextCtrl* m_ThZText;
00071     wxTextCtrl* m_PhiZText;
00078     virtual void MainFormClose(wxCloseEvent& event) { event.Skip(); }
00083     virtual void DisplayPanelRepaint(wxUpdateUIEvent& event) { event.Skip(); }
00088     virtual void Scrolls_Updated(wxScrollEvent& event) { event.Skip(); }
00089
00094     virtual void XRot_Updated(wxScrollEvent& event) { event.Skip(); }
00099     virtual void YRot_Updated(wxScrollEvent& event) { event.Skip(); }
00104     virtual void ZRot_Updated(wxScrollEvent& event) { event.Skip(); }
00105
00110     virtual void XA_Updated(wxCommandEvent& event) { event.Skip(); }
00115     virtual void YA_Updated(wxCommandEvent& event) { event.Skip(); }
00120     virtual void ZA_Updated(wxCommandEvent& event) { event.Skip(); }
00121
00126     virtual void XTheta_Updated(wxCommandEvent& event) { event.Skip(); }
00131     virtual void YTheta_Updated(wxCommandEvent& event) { event.Skip(); }
00136     virtual void ZTheta_Updated(wxCommandEvent& event) { event.Skip(); }
00137
00142     virtual void XPhi_Updated(wxCommandEvent& event) { event.Skip(); }
00147     virtual void YPhi_Updated(wxCommandEvent& event) { event.Skip(); }
00152     virtual void ZPhi_Updated(wxCommandEvent& event) { event.Skip(); }
00153
00158     virtual void DotsLines_Updated(wxCommandEvent& event) { event.Skip(); }
00163     virtual void Animation_Updated(wxCommandEvent& event) { event.Skip(); }
00168     virtual void AnimationBreak(wxCommandEvent& event) { event.Skip(); }
00173     virtual void ParamType_Updated(wxCommandEvent& event) { event.Skip(); }
00174
00175     wxTimer m_timer;
00176
00177 public:
00178     wxPanel* m_DisplayWindow;
00183     MyFrame1(wxWindow* parent, wxWindowID id = wxID_ANY, const wxString& title = wxEmptyString, const
      wxPoint& pos = wxDefaultPosition, const wxSize& size = wxSize(1055, 612), long style =
      wxDEFAULT_FRAME_STYLE | wxTAB_TRAVERSAL);
00188     ~MyFrame1();
00189 };
```

5.11 main.cpp File Reference

```
#include <wx/wx.h>
#include "GUIMyFrame.h"
```

Classes

- class MyApp

Functions

- IMPLEMENT_APP (MyApp)

5.11.1 Function Documentation

5.11.1.1 IMPLEMENT_APP()

```
IMPLEMENT_APP (
              MyApp  )
```

5.12 main.cpp

Go to the documentation of this file.

```
00001 #include <wx/wx.h>
00002 #include "GUIMyFrame.h"
00003
00004 class MyApp : public wxApp {
00005 public:
00006
00007     virtual bool OnInit();
00008     virtual int OnExit() { return 0; }
00009
00010 };
00011
00012 IMPLEMENT_APP(MyApp);
00013
00014 bool MyApp::OnInit()
00015 {
00016     GUIMyFrame* mainFrame = new GUIMyFrame(NULL);
00017
00018     mainFrame->Show(true);
00019     SetTopWindow(mainFrame);
00020
00021     return true;
00022 }
```

5.13 src/ChartClass.cpp File Reference

```
#include "ChartClass.h"
#include "vecmat.h"
#include <memory>
#include <vector>
#include <wx/timer.h>
```

Functions

- double min (const double a, const double b, const double c)

  a normal function taking three values, returning a double value

5.13.1 Function Documentation

5.13.1.1 min()

```
double min (
            const double a,
            const double b,
            const double c )
```

a normal function taking three values, returning a double value

Parameters

a	a const double value
b	a const double value
c	a const double value

Returns

the smallest value of the three parameters

Definition at line 158 of file ChartClass.cpp.

```
00159 {
00160     double min = a;
00161     if (b < min && b != 0) min = b;
00162     if (c < min && c != 0) min = c;
00163     return min;
00164 }
```

5.14 ChartClass.cpp

Go to the documentation of this file.

```
00001 #include "ChartClass.h"
00002 #include "vecmat.h"
00003 #include <memory>
00004 #include <vector>
00005 #include <wx/timer.h>
00006
00007 ChartClass::ChartClass(std::shared_ptr<ConfigClass> c)
00008 {
00009     cfg = std::move(c);
00010 }
00011
00012 void ChartClass::Draw(wxDC* dc, int w, int h)
00013 {
00014     dc->SetBackground(wxBrush(wxColor(255, 255, 255)));
00015     dc->Clear();
00016     Vector4 vector1;
00017     Vector4 vector2;
00018     double r1, r2, phi1, phi2, th1, th2;
00019
00020     Matrix4 m2;
00021     double alpha = cfg->getZ_Rot() * M_PI / 180.0;
00022     m2.data[0][0] = cos(alpha);
00023     m2.data[0][1] = sin(alpha);
00024     m2.data[1][0] = -sin(alpha);
00025     m2.data[1][1] = cos(alpha);
00026     m2.data[2][2] = 1;
00027
00028     Matrix4 m3;
00029     alpha = cfg->getY_Rot() * M_PI / 180.0;
```

```
00030     m3.data[0][0] = cos(alpha);
00031     m3.data[0][2] = -sin(alpha);
00032     m3.data[1][1] = 1;
00033     m3.data[2][0] = sin(alpha);
00034     m3.data[2][2] = cos(alpha);
00035 
00036     Matrix4 m4;
00037     alpha = cfg->getX_Rot() * M_PI / 180.0;
00038     m4.data[0][0] = 1;
00039     m4.data[1][1] = cos(alpha);
00040     m4.data[1][2] = sin(alpha);
00041     m4.data[2][1] = -sin(alpha);
00042     m4.data[2][2] = cos(alpha);
00043 
00044     Matrix4 transform1 = m4 * m3 * m2;
00045     double minTheta = min(cfg->getX_theta() ,cfg->getY_theta(), cfg->getZ_theta());
00046     // drawing
00047     wxPen m_pen;
00048     m_pen.SetColour((wxColor(200, 200, 200)));
00049     dc->SetPen(m_pen);
00050     if (!cfg->get_Animation())
00051     {
00052         for (double i = 0; i < ((50 * 3.14159) / minTheta); i += ((2 * 3.14159) / (minTheta * 200)))
00053         {
00054             if(!cfg->get_Polar()){
00055                 vector1.data[0] = cfg->getX_A() * sin(cfg->getX_theta() * i + cfg->getX_phi());
00056                 vector1.data[1] = cfg->getY_A() * sin(cfg->getY_theta() * i + cfg->getY_phi());
00057                 vector1.data[2] = cfg->getZ_A() * sin(cfg->getZ_theta() * i + cfg->getZ_phi());
00058                 vector1.data[3] = 1;
00059                 vector1 = transform1 * vector1;
00060 
00061                 vector2.data[0] = cfg->getX_A() * sin(cfg->getX_theta() * (i + ((2 * 3.14159) /
      (minTheta * 200))) + cfg->getX_phi());
00062                 vector2.data[1] = cfg->getY_A() * sin(cfg->getY_theta() * (i + ((2 * 3.14159) /
      (minTheta * 200))) + cfg->getY_phi());
00063                 vector2.data[2] = cfg->getZ_A() * sin(cfg->getZ_theta() * (i + ((2 * 3.14159) /
      (minTheta * 200))) + cfg->getZ_phi());
00064                 vector2.data[3] = 1;
00065                 vector2 = transform1 * vector2;
00066             }
00067             else {
00068                 r1 = cfg->getR() * sin(cfg->getX_theta() * i + cfg->getX_phi());
00069                 th1 = M_PI * sin(cfg->getY_theta() * i + cfg->getY_phi());
00070                 phi1 = (M_PI/2) * sin(cfg->getZ_theta() * i + cfg->getZ_phi());
00071 
00072                 vector1.data[0] = r1 * cos(th1) * cos(phi1);
00073                 vector1.data[1] = r1 * sin(th1) * cos(phi1);
00074                 vector1.data[2] = r1 * sin(phi1);
00075                 vector2.data[3] = 1;
00076                 vector1 = transform1 * vector1;
00077 
00078                 r2 = cfg->getR() * sin(cfg->getX_theta() * (i + ((2 * 3.14159) / (minTheta * 200))) +
      cfg->getX_phi());
00079                 th2 = M_PI * sin(cfg->getY_theta() * (i + ((2 * 3.14159) / (minTheta * 200))) +
      cfg->getY_phi());
00080                 phi2 = (M_PI / 2) * sin(cfg->getZ_theta() * (i + ((2 * 3.14159) / (minTheta * 200))) +
      cfg->getZ_phi());
00081 
00082                 vector2.data[0] = r2 * cos(th2) * cos(phi2);
00083                 vector2.data[1] = r2 * sin(th2) * cos(phi2);
00084                 vector2.data[2] = r2 * sin(phi2);
00085                 vector2.data[3] = 1;
00086                 vector2 = transform1 * vector2;
00087             }
00088 
00089             dc->SetPen(wxPen(*wxBLACK, 2));
00090             if (cfg->get_Points() == true)
00091                 dc->DrawCircle(wxPoint(w / 2 + vector1.data[0], h / 2 + vector1.data[1]), 1);
00092             else
00093                 dc->DrawLine(wxPoint(w / 2 + vector1.data[0], h / 2 + vector1.data[1]), wxPoint(w / 2
      + vector2.data[0], h / 2 + vector2.data[1]));
00094         }
00095     }
00096     else
00097     {
00098         static long long int startPoint = 0;
00099         std::vector<std::vector<double» animationPoints;
00100         std::vector<double> t;
00101         if (!cfg->get_Polar())
00102             for (double i = 0; i < ((50 * 3.14159) / minTheta); i += ((2 * 3.14159) / (minTheta *
      200)))
00103             {
00104                 vector1.data[0] = cfg->getX_A() * sin(cfg->getX_theta() * i + cfg->getX_phi());
00105                 vector1.data[1] = cfg->getY_A() * sin(cfg->getY_theta() * i + cfg->getY_phi());
00106                 vector1.data[2] = cfg->getZ_A() * sin(cfg->getZ_theta() * i + cfg->getZ_phi());
00107                 vector1.data[3] = 1;
00108                 vector1 = transform1 * vector1;
```

```
00109                 t.push_back(vector1.data[0]);
00110                 t.push_back(vector1.data[1]);
00111                 animationPoints.push_back(t);
00112                 t.clear();
00113             }
00114         else
00115             for (double i = 0; i < ((50 * 3.14159) / minTheta); i += ((2 * 3.14159) / (minTheta *
      200)))
00116             {
00117                 r1 = cfg->getR() * sin(cfg->getX_theta() * i + cfg->getX_phi());
00118                 th1 = M_PI * sin(cfg->getY_theta() * i + cfg->getY_phi());
00119                 phi1 = (M_PI / 2) * sin(cfg->getZ_theta() * i + cfg->getZ_phi());
00120 
00121                 vector1.data[0] = r1 * cos(th1) * cos(phi1);
00122                 vector1.data[1] = r1 * sin(th1) * cos(phi1);
00123                 vector1.data[2] = r1 * sin(phi1);
00124                 vector2.data[3] = 1;
00125                 vector1 = transform1 * vector1;
00126                 t.push_back(vector1.data[0]);
00127                 t.push_back(vector1.data[1]);
00128                 animationPoints.push_back(t);
00129                 t.clear();
00130             }
00131         for (int i = 0; i < animationPoints.size()-1; i++)
00132         {
00133             dc->DrawLine(wxPoint(w / 2 + animationPoints[i][0], h / 2 + animationPoints[i][1]),
      wxPoint(w / 2 + animationPoints[(i + 1) % animationPoints.size()][0], h / 2 + animationPoints[(i + 1)
      % animationPoints.size()][1]));
00134         }
00135 
00136         for (int i = startPoint; i < startPoint + 150;)
00137         {
00138             i %= animationPoints.size();
00139             dc->SetPen(wxPen(wxColor(255 * (i - startPoint) / 150, 0, 255 * (150 - i + startPoint) /
      150), 2));
00140             if (cfg->get_Points() == true)
00141             {
00142                 dc->DrawCircle(wxPoint(w / 2 + animationPoints[i][0], h / 2 + animationPoints[i][1]),
      1);
00143                 i += 4;
00144             }
00145             else
00146             {
00147                 dc->DrawLine(wxPoint(w / 2 + animationPoints[i][0], h / 2 + animationPoints[i][1]),
      wxPoint(w / 2 + animationPoints[(i + 1) % animationPoints.size()][0], h / 2 + animationPoints[(i + 1)
      % animationPoints.size()][1]));
00148                 i++;
00149             }
00150             if (i == animationPoints.size() - 1) i = 0;
00151         }
00152         if (cfg->get_Points()) startPoint += 4;
00153         else startPoint++;
00154         if (startPoint >= 4000) startPoint = 0;
00155     }
00156 }
00157 
00158 double min(const double a, const double b, const double c)
00159 {
00160     double min = a;
00161     if (b < min && b != 0) min = b;
00162     if (c < min && c != 0) min = c;
00163     return min;
00164 }
```

5.15 src/ConfigClass.cpp File Reference

```
#include <fstream>
#include "ConfigClass.h"
```

5.16 ConfigClass.cpp

Go to the documentation of this file.

```
00001 #include <fstream>
```

```
00002 #include "ConfigClass.h"
00003
00004 ConfigClass::ConfigClass(GUIMyFrame* wnd)
00005 {
00006     MainWindow = wnd;
00007     X_A = Y_A = Z_A = 100;
00008     X_theta = 1;
00009     Y_theta = 1;
00010     Z_theta = 0;
00011     X_phi = Z_phi = 0;
00012     Y_phi = 3.1415 / 2;
00013     R = 100;
00014
00015     points = false;
00016     animation = false;
00017     polar = false;
00018 }
```

5.17 src/GUIMyFrame.cpp File Reference

```
#include "GUIMyFrame.h"
#include "ConfigClass.h"
#include "ChartClass.h"
```

5.18 GUIMyFrame.cpp

Go to the documentation of this file.

```
00001 #include "GUIMyFrame.h"
00002 #include "ConfigClass.h"
00003 #include "ChartClass.h"
00004
00005 GUIMyFrame::GUIMyFrame(wxWindow* parent) : MyFrame1(parent)
00006 {
00007     cfg = std::make_shared<ConfigClass>(this);
00008     Repaint();
00009 }
00010
00011 GUIMyFrame::~GUIMyFrame()
00012 {}
00013
00014 void GUIMyFrame::MainFormClose(wxCloseEvent& event)
00015 {
00016     Destroy();
00017 }
00018
00019 void GUIMyFrame::XRot_Updated(wxScrollEvent& event)
00020 {
00021     cfg->SetX_Rot(m_XRotationSlider->GetValue());
00022     Repaint();
00023 }
00024
00025 void GUIMyFrame::YRot_Updated(wxScrollEvent& event)
00026 {
00027     cfg->SetY_Rot(m_YRotationSlider->GetValue());
00028     Repaint();
00029 }
00030
00031 void GUIMyFrame::ZRot_Updated(wxScrollEvent& event)
00032 {
00033     cfg->SetZ_Rot(m_ZRotationSlider->GetValue());
00034     Repaint();
00035 }
00036 // -------------
00037 void GUIMyFrame::XA_Updated(wxCommandEvent& event) {
00038     double v;
00039     if (cfg->get_Polar()) {
00040         if (m_AXText->GetValue().ToDouble(&v))
00041         {
00042             cfg->SetR(v);
00043             Repaint();
00044         }
00045     }
00046     else {
```

```
00047         if (m_AXText->GetValue().ToDouble(&v))
00048         {
00049             cfg->SetX_A(v);
00050                 Repaint();
00051         }
00052         else wxBell();
00053     }
00054 }
00055
00056 void GUIMyFrame::YA_Updated(wxCommandEvent& event) {
00057     double v;
00058     if (m_AYText->GetValue().ToDouble(&v))
00059     {
00060         cfg->SetY_A(v);
00061         Repaint();
00062     }
00063     else wxBell();
00064 }
00065
00066 void GUIMyFrame::ZA_Updated(wxCommandEvent& event) {
00067     double v;
00068     if (m_AZText->GetValue().ToDouble(&v))
00069     {
00070         cfg->SetZ_A(v);
00071         Repaint();
00072     }
00073     else wxBell();
00074 }
00075 // -------------
00076 void GUIMyFrame::XTheta_Updated(wxCommandEvent& event) {
00077     double v;
00078     if (m_ThXText->GetValue().ToDouble(&v))
00079     {
00080         cfg->SetX_theta(v);
00081         Repaint();
00082     }
00083     else wxBell();
00084 }
00085
00086 void GUIMyFrame::YTheta_Updated(wxCommandEvent& event) {
00087     double v;
00088     if (m_ThYText->GetValue().ToDouble(&v))
00089     {
00090         cfg->SetY_theta(v);
00091         Repaint();
00092     }
00093     else wxBell();
00094 }
00095
00096 void GUIMyFrame::ZTheta_Updated(wxCommandEvent& event) {
00097     double v;
00098     if (m_ThZText->GetValue().ToDouble(&v))
00099     {
00100         cfg->SetZ_theta(v);
00101         Repaint();
00102     }
00103     else wxBell();
00104 }
00105 // -------------
00106 void GUIMyFrame::XPhi_Updated(wxCommandEvent& event) {
00107     double v;
00108     if (m_PhiXText->GetValue().ToDouble(&v))
00109     {
00110         cfg->SetX_phi(v);
00111         Repaint();
00112     }
00113     else wxBell();
00114 }
00115
00116 void GUIMyFrame::YPhi_Updated(wxCommandEvent& event) {
00117     double v;
00118     if (m_PhiYText->GetValue().ToDouble(&v))
00119     {
00120         cfg->SetY_phi(v);
00121         Repaint();
00122     }
00123     else wxBell();
00124 }
00125
00126 void GUIMyFrame::ZPhi_Updated(wxCommandEvent& event) {
00127     double v;
00128     if (m_PhiZText->GetValue().ToDouble(&v))
00129     {
00130         cfg->SetZ_phi(v);
00131         Repaint();
00132     }
00133     else wxBell();
```

```
00134 }
00135 // -------------
00136 void GUIMyFrame::DotsLines_Updated(wxCommandEvent& event)
00137 {
00138     if (m_radioBox1->GetSelection() == 0) {
00139         cfg->Set_Points(false);
00140     }
00141     else {
00142         cfg->Set_Points(true);
00143     }
00144     Repaint();
00145 }
00146
00147 void GUIMyFrame::Animation_Updated(wxCommandEvent& event)
00148 {
00149     if (animationBox->GetSelection() == 0) {
00150         cfg->Set_Animation(false);
00151     }
00152     else {
00153         cfg->Set_Animation(true);
00154     }
00155     Repaint();
00156 }
00157
00158 void GUIMyFrame::ParamType_Updated(wxCommandEvent& event) {
00159     if (ParamBox->GetSelection() == 0) { //uklad kartezjanski
00160         cfg->Set_ParamType(false);
00161         m_AYText->SetEditable(true);
00162         m_AZText->SetEditable(true);
00163         m_AYText->Clear();
00164         m_AZText->Clear();
00165         m_staticText5->SetLabel("A");
00166         m_staticText53->SetLabel("A");
00167         m_staticText54->SetLabel("A");
00168         m_staticText51->SetLabel(wxT(""));
00169         m_staticText51->SetLabel(wxT(""));
00170         m_staticText51->SetLabel(wxT(""));
00171         m_staticText19->SetLabel("X");
00172         m_staticText18->SetLabel("Y");
00173         m_staticText4->SetLabel("Z");
00174     }
00175     else {
00176         cfg->Set_ParamType(true);
00177         m_AYText->SetEditable(false);
00178         m_AYText->Clear();
00179         m_AYText->AppendText("-");
00180         m_AZText->SetEditable(false);
00181         m_AZText->Clear();
00182         m_AZText->AppendText("-");
00183         m_staticText5->SetLabel("r");
00184         m_staticText53->SetLabel("-");
00185         m_staticText54->SetLabel("-");
00186         m_staticText51->SetLabel(wxT(""));
00187         m_staticText511->SetLabel(wxT(""));
00188         m_staticText512->SetLabel(wxT(""));
00189         m_staticText19->SetLabel("R");
00190         m_staticText18->SetLabel(wxT(""));
00191         m_staticText4->SetLabel(wxT(""));
00192     }
00193     Repaint();
00194 }
00195
00196 void GUIMyFrame::DisplayPanelRepaint(wxUpdateUIEvent& event)
00197 {
00198     static int i = 0;
00199     if (cfg->get_Animation())
00200     {
00201         i++;
00202         if (i % 4 == 0 && cfg->get_Points())
00203             Repaint();
00204         if (!cfg->get_Points())
00205             Repaint();
00206         if (i > 1000) i = 0;
00207     }
00208     else
00209         Repaint();
00210 }
00211
00212 void GUIMyFrame::Repaint()
00213 {
00214     wxClientDC dc1(m_DisplayWindow);
00215     wxBufferedDC dc(&dc1);
00216
00217     ChartClass MyChart(cfg);
00218     int w, h;
00219     m_DisplayWindow->GetSize(&w, &h);
00220     MyChart.Draw(&dc, w, h);
```

```
00221 }
```

5.19 src/vecmat.cpp File Reference

```
#include "vecmat.h"
```

Functions

- Vector4 operator∗ (const Vector4 &gVector, double val)
- Vector4 operator∗ (const Matrix4 gMatrix, const Vector4 gVector)

5.19.1 Function Documentation

5.19.1.1 operator∗() [1/2]

```
Vector4 operator* (
            const Matrix4 gMatrix,
            const Vector4 gVector )
```

Definition at line 80 of file vecmat.cpp.

```
00081 {
00082     unsigned int i, j;
00083     Vector4 tmp;
00084
00085     for (i = 0; i < 4; i++)
00086     {
00087         tmp.data[i] = 0.0;
00088         for (j = 0; j < 4; j++) tmp.data[i] = tmp.data[i] + (gMatrix.data[i][j] * gVector.data[j]);
00089     }
00090     return tmp;
00091 }
```

5.19.1.2 operator∗() [2/2]

```
Vector4 operator* (
            const Vector4 & gVector,
            double val )
```

Definition at line 41 of file vecmat.cpp.

```
00042 {
00043     unsigned int i;
00044     Vector4 Result;
00045     for (i = 0; i < 4; i++) Result.data[i] = gVector.data[i] * val;
00046     return Result;
00047 }
```

5.20 vecmat.cpp

Go to the documentation of this file.

```
00001 #include "vecmat.h"
00002
00003 Vector4::Vector4()
00004 {
00005     data[0] = 0.0; data[1] = 0.0; data[2] = 0.0; data[3] = 1.0;
00006 }
00007
00008 void Vector4::Print(void)
00009 {
00010     printf("(%2.3lf,%2.3lf,%2.3lf,%2.3lf)\n", data[0], data[1], data[2], data[3]);
00011 }
00012
00013 void Vector4::Set(double d1, double d2, double d3)
00014 {
00015     data[0] = d1; data[1] = d2; data[2] = d3;
00016 }
00017
00018 double Vector4::GetX()
00019 {
00020     return data[0];
00021 }
00022
00023 double Vector4::GetY()
00024 {
00025     return data[1];
00026 }
00027
00028 double Vector4::GetZ()
00029 {
00030     return data[2];
00031 }
00032
00033 Vector4 Vector4::operator- (const Vector4& gVector)
00034 {
00035     unsigned int i;
00036     Vector4 Result;
00037     for (i = 0; i < 4; i++) Result.data[i] = data[i] - gVector.data[i];
00038     return Result;
00039 }
00040
00041 Vector4 operator* (const Vector4& gVector, double val)
00042 {
00043     unsigned int i;
00044     Vector4 Result;
00045     for (i = 0; i < 4; i++) Result.data[i] = gVector.data[i] * val;
00046     return Result;
00047 }
00048
00049 Matrix4::Matrix4()
00050 {
00051     data[0][0] = 0.0; data[0][1] = 0.0; data[0][2] = 0.0; data[0][3] = 0.0;
00052     data[1][0] = 0.0; data[1][1] = 0.0; data[1][2] = 0.0; data[1][3] = 0.0;
00053     data[2][0] = 0.0; data[2][1] = 0.0; data[2][2] = 0.0; data[2][3] = 0.0;
00054     data[3][0] = 0.0; data[3][1] = 0.0; data[3][2] = 0.0; data[3][3] = 1.0;
00055 }
00056
00057 void Matrix4::Print(void)
00058 {
00059     printf("\n|%2.3lf,%2.3lf,%2.3lf,%2.3lf|\n", data[0][0], data[0][1], data[0][2], data[0][3]);
00060     printf("|%2.3lf,%2.3lf,%2.3lf,%2.3lf|\n", data[1][0], data[1][1], data[1][2], data[1][3]);
00061     printf("|%2.3lf,%2.3lf,%2.3lf,%2.3lf|\n", data[2][0], data[2][1], data[2][2], data[2][3]);
00062     printf("|%2.3lf,%2.3lf,%2.3lf,%2.3lf|\n", data[3][0], data[3][1], data[3][2], data[2][3]);
00063 }
00064
00065 Matrix4 Matrix4::operator* (const Matrix4 gMatrix)
00066 {
00067     int i, j, k;
00068     Matrix4 tmp;
00069
00070     for (i = 0; i < 4; i++)
00071         for (j = 0; j < 4; j++)
00072         {
00073             tmp.data[i][j] = 0.0;
00074             for (k = 0; k < 4; k++)
00075                 tmp.data[i][j] = tmp.data[i][j] + (data[i][k] * gMatrix.data[k][j]);
00076         }
00077     return tmp;
00078 }
00079
00080 Vector4 operator* (const Matrix4 gMatrix, const Vector4 gVector)
00081 {
00082     unsigned int i, j;
```

```
00083     Vector4 tmp;
00084
00085     for (i = 0; i < 4; i++)
00086     {
00087         tmp.data[i] = 0.0;
00088         for (j = 0; j < 4; j++) tmp.data[i] = tmp.data[i] + (gMatrix.data[i][j] * gVector.data[j]);
00089     }
00090     return tmp;
00091 }
```

5.21 src/Window.cpp File Reference

```
#include "Window.h"
```

5.22 Window.cpp

Go to the documentation of this file.

```
00001
00002 // C++ code generated with wxFormBuilder (version 3.10.1-0-g8feb16b3)
00003 // http://www.wxformbuilder.org/
00004 //
00005 // PLEASE DO *NOT* EDIT THIS FILE!
00007
00008 #include "Window.h"
00009
00011
00012 MyFrame1::MyFrame1(wxWindow* parent, wxWindowID id, const wxString& title, const wxPoint& pos, const
       wxSize& size, long style) : wxFrame(parent, id, title, pos, size, style), m_timer(this, 1)
00013 {
00014     SetTitle(_("Linie Lissajous - Natalia Przetocka, Karolina Klimek i Mateusz Lewandowski"));
00015     this->SetSizeHints(wxDefaultSize, wxDefaultSize);
00016
00017     wxBoxSizer* bSizer1;
00018     bSizer1 = new wxBoxSizer(wxHORIZONTAL);
00019
00020     wxBoxSizer* bSizer2;
00021     bSizer2 = new wxBoxSizer(wxVERTICAL);
00022
00023     wxBoxSizer* bSizer30;
00024     bSizer30 = new wxBoxSizer(wxVERTICAL);
00025
00026     m_DisplayWindow = new wxPanel(this, wxID_ANY, wxDefaultPosition, wxDefaultSize, wxTAB_TRAVERSAL);
00027     m_DisplayWindow->SetBackgroundColour(wxSystemSettings::GetColour(wxSYS_COLOUR_BTNHIGHLIGHT));
00028
00029     bSizer30->Add(m_DisplayWindow, 5, wxALL | wxEXPAND, 5);
00030
00031     bSizer2->Add(bSizer30, 30, wxEXPAND, 5);
00032
00033     wxBoxSizer* bSizer37;
00034     bSizer37 = new wxBoxSizer(wxHORIZONTAL);
00035
00036     wxBoxSizer* bSizer38;
00037     bSizer38 = new wxBoxSizer(wxVERTICAL);
00038
00039     wxBoxSizer* bSizer36;
00040     bSizer36 = new wxBoxSizer(wxVERTICAL);
00041
00042     m_staticText20 = new wxStaticText(this, wxID_ANY, wxT("Rotacja"), wxDefaultPosition,
       wxDefaultSize, 0);
00043     m_staticText20->Wrap(-1);
00044     m_staticText20->SetFont(wxFont(12, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
       false, wxT("Cambria")));
00045
00046     bSizer36->Add(m_staticText20, 0, wxALL | wxALIGN_CENTER_HORIZONTAL, 5);
00047
00048     bSizer38->Add(bSizer36, 0, wxEXPAND, 5);
00049
00050     wxBoxSizer* bSizer32;
00051     bSizer32 = new wxBoxSizer(wxHORIZONTAL);
00052
00053     wxBoxSizer* bSizer33;
00054     bSizer33 = new wxBoxSizer(wxVERTICAL);
00055
00056     wxBoxSizer* bSizer40;
```

```
00057     bSizer40 = new wxBoxSizer(wxVERTICAL);
00058
00059     m_staticText21 = new wxStaticText(this, wxID_ANY, wxT("O X"), wxDefaultPosition, wxDefaultSize,
      0);
00060     m_staticText21->Wrap(-1);
00061     m_staticText21->SetFont(wxFont(12, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
     false, wxT("Cambria")));
00062
00063     bSizer40->Add(m_staticText21, 0, wxALL | wxALIGN_CENTER_HORIZONTAL, 5);
00064
00065     bSizer33->Add(bSizer40, 0, wxEXPAND, 5);
00066
00067     wxBoxSizer* bSizer42;
00068     bSizer42 = new wxBoxSizer(wxVERTICAL);
00069
00070     m_XRotationSlider = new wxSlider(this, wxID_ANY, 0, 0, 360, wxDefaultPosition, wxSize(-1, -1),
     wxSL_HORIZONTAL | wxSL_VALUE_LABEL);
00071     m_XRotationSlider->SetMaxSize(wxSize(300, -1));
00072
00073     bSizer42->Add(m_XRotationSlider, 0, wxALIGN_CENTER_HORIZONTAL | wxALIGN_CENTER_VERTICAL | wxALL |
     wxEXPAND, 5);
00074
00075     bSizer33->Add(bSizer42, 0, wxEXPAND, 5);
00076
00077     bSizer32->Add(bSizer33, 1, wxEXPAND, 5);
00078
00079     wxBoxSizer* bSizer34;
00080     bSizer34 = new wxBoxSizer(wxVERTICAL);
00081
00082     m_staticText22 = new wxStaticText(this, wxID_ANY, wxT("O Y"), wxDefaultPosition, wxDefaultSize,
      0);
00083     m_staticText22->Wrap(-1);
00084     m_staticText22->SetFont(wxFont(12, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
     false, wxT("Cambria")));
00085
00086     bSizer34->Add(m_staticText22, 0, wxALL | wxALIGN_CENTER_HORIZONTAL, 5);
00087
00088     m_YRotationSlider = new wxSlider(this, wxID_ANY, 0, 0, 360, wxDefaultPosition, wxDefaultSize,
     wxSL_HORIZONTAL | wxSL_VALUE_LABEL);
00089     m_YRotationSlider->SetMaxSize(wxSize(300, -1));
00090
00091     bSizer34->Add(m_YRotationSlider, 0, wxALIGN_CENTER_HORIZONTAL | wxALL | wxEXPAND, 5);
00092
00093     bSizer32->Add(bSizer34, 1, wxEXPAND, 5);
00094
00095     wxBoxSizer* bSizer35;
00096     bSizer35 = new wxBoxSizer(wxVERTICAL);
00097
00098     m_staticText23 = new wxStaticText(this, wxID_ANY, wxT("O Z"), wxDefaultPosition, wxDefaultSize,
      0);
00099     m_staticText23->Wrap(-1);
00100     m_staticText23->SetFont(wxFont(12, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
     false, wxT("Cambria")));
00101
00102     bSizer35->Add(m_staticText23, 0, wxALL | wxALIGN_CENTER_HORIZONTAL, 5);
00103
00104     m_ZRotationSlider = new wxSlider(this, wxID_ANY, 0, 0, 360, wxDefaultPosition, wxDefaultSize,
     wxSL_HORIZONTAL | wxSL_VALUE_LABEL);
00105     m_ZRotationSlider->SetMaxSize(wxSize(300, -1));
00106
00107     bSizer35->Add(m_ZRotationSlider, 0, wxALIGN_CENTER_HORIZONTAL | wxALL | wxEXPAND, 5);
00108
00109     bSizer32->Add(bSizer35, 1, wxEXPAND, 5);
00110
00111     bSizer38->Add(bSizer32, 0, wxEXPAND, 5);
00112
00113     bSizer37->Add(bSizer38, 3, wxEXPAND, 5);
00114
00115     bSizer2->Add(bSizer37, 0, wxEXPAND, 5);
00116
00117     bSizer1->Add(bSizer2, 7, wxALIGN_RIGHT | wxEXPAND, 5);
00118
00119     wxBoxSizer* bSizer4;
00120     bSizer4 = new wxBoxSizer(wxVERTICAL);
00121
00122     m_staticText17 = new wxStaticText(this, wxID_ANY, wxT("Parametry"), wxDefaultPosition,
     wxDefaultSize, 0);
00123     m_staticText17->Wrap(-1);
00124     m_staticText17->SetFont(wxFont(16, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
     false, wxT("Cambria")));
00125
00126     bSizer4->Add(m_staticText17, 0, wxALL | wxALIGN_CENTER_HORIZONTAL, 5);
00127
00128     wxBoxSizer* bSizer361;
00129     bSizer361 = new wxBoxSizer(wxVERTICAL);
00130
00131     wxString ParamBoxChoices[] = { wxT("Kartezjaska"), wxT("Biegunowa") };
```

```
00132     int ParamBoxNChoices = sizeof(ParamBoxChoices) / sizeof(wxString);
00133     ParamBox = new wxRadioBox(this, wxID_ANY, wxT("Rodzaj parametryzacji"), wxDefaultPosition,
      wxDefaultSize, ParamBoxNChoices, ParamBoxChoices, 1, wxRA_SPECIFY_COLS);
00134     ParamBox->SetSelection(0);
00135     bSizer361->Add(ParamBox, 0, wxALIGN_CENTER_HORIZONTAL | wxALIGN_CENTER_VERTICAL | wxALL, 5);
00136
00137
00138     bSizer4->Add(bSizer361, 0, wxEXPAND, 5);
00139
00140     wxBoxSizer* bSizer9;
00141     bSizer9 = new wxBoxSizer(wxVERTICAL);
00142
00143     m_staticText19 = new wxStaticText(this, wxID_ANY, wxT("X"), wxDefaultPosition, wxDefaultSize, 0);
00144     m_staticText19->Wrap(-1);
00145     m_staticText19->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00146
00147     bSizer9->Add(m_staticText19, 0, wxALL | wxALIGN_CENTER_HORIZONTAL, 5);
00148
00149     wxBoxSizer* bSizer10;
00150     bSizer10 = new wxBoxSizer(wxHORIZONTAL);
00151
00152     m_staticText5 = new wxStaticText(this, wxID_ANY, wxT("A"), wxDefaultPosition, wxDefaultSize, 0);
00153     m_staticText5->Wrap(-1);
00154     m_staticText5->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00155
00156     bSizer10->Add(m_staticText5, 1, wxALL | wxALIGN_CENTER_VERTICAL, 5);
00157
00158     m_AXText = new wxTextCtrl(this, wxID_ANY, wxT("100"), wxDefaultPosition, wxSize(-1, -1), 0);
00159     bSizer10->Add(m_AXText, 5, wxALL | wxALIGN_RIGHT | wxALIGN_CENTER_VERTICAL, 5);
00160
00161     bSizer9->Add(bSizer10, 0, wxEXPAND, 5);
00162
00163     wxBoxSizer* bSizer101;
00164     bSizer101 = new wxBoxSizer(wxHORIZONTAL);
00165
00166     m_staticText51 = new wxStaticText(this, wxID_ANY, wxT(""), wxDefaultPosition, wxDefaultSize, 0);
00167     m_staticText51->Wrap(-1);
00168     m_staticText51->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00169
00170     bSizer101->Add(m_staticText51, 1, wxALL | wxALIGN_CENTER_VERTICAL, 5);
00171
00172     m_ThXText = new wxTextCtrl(this, wxID_ANY, wxT("1"), wxDefaultPosition, wxDefaultSize, 0);
00173     bSizer101->Add(m_ThXText, 5, wxALL | wxALIGN_RIGHT | wxALIGN_CENTER_VERTICAL, 5);
00174
00175     bSizer9->Add(bSizer101, 0, wxEXPAND, 5);
00176
00177     wxBoxSizer* bSizer102;
00178     bSizer102 = new wxBoxSizer(wxHORIZONTAL);
00179
00180     m_staticText52 = new wxStaticText(this, wxID_ANY, wxT(""), wxDefaultPosition, wxDefaultSize, 0);
00181     m_staticText52->Wrap(-1);
00182     m_staticText52->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00183
00184     bSizer102->Add(m_staticText52, 1, wxALL | wxALIGN_CENTER_VERTICAL, 5);
00185
00186     m_PhiXText = new wxTextCtrl(this, wxID_ANY, wxT("0"), wxDefaultPosition, wxDefaultSize, 0);
00187     bSizer102->Add(m_PhiXText, 5, wxALL | wxALIGN_RIGHT | wxALIGN_CENTER_VERTICAL, 5);
00188
00189     bSizer9->Add(bSizer102, 0, wxEXPAND, 5);
00190
00191     bSizer4->Add(bSizer9, 0, wxEXPAND, 5);
00192
00193     wxBoxSizer* bSizer91;
00194     bSizer91 = new wxBoxSizer(wxVERTICAL);
00195
00196     m_staticText18 = new wxStaticText(this, wxID_ANY, wxT("Y"), wxDefaultPosition, wxDefaultSize, 0);
00197     m_staticText18->Wrap(-1);
00198     m_staticText18->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00199
00200     bSizer91->Add(m_staticText18, 0, wxALL | wxALIGN_CENTER_HORIZONTAL, 5);
00201
00202     wxBoxSizer* bSizer103;
00203     bSizer103 = new wxBoxSizer(wxHORIZONTAL);
00204
00205     m_staticText53 = new wxStaticText(this, wxID_ANY, wxT("A"), wxDefaultPosition, wxDefaultSize, 0);
00206     m_staticText53->Wrap(-1);
00207     m_staticText53->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00208
00209     bSizer103->Add(m_staticText53, 1, wxALL | wxALIGN_CENTER_VERTICAL, 5);
00210
00211     m_AYText = new wxTextCtrl(this, wxID_ANY, wxT("100"), wxDefaultPosition, wxDefaultSize, 0);
```

```
00212     bSizer103->Add(m_AYText, 5, wxALL | wxALIGN_RIGHT | wxALIGN_CENTER_VERTICAL, 5);
00213
00214     bSizer91->Add(bSizer103, 1, wxEXPAND, 5);
00215
00216     wxBoxSizer* bSizer1011;
00217     bSizer1011 = new wxBoxSizer(wxHORIZONTAL);
00218
00219     m_staticText511 = new wxStaticText(this, wxID_ANY, wxT(""), wxDefaultPosition, wxDefaultSize, 0);
00220     m_staticText511->Wrap(-1);
00221     m_staticText511->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
    false, wxT("Cambria")));
00222
00223     bSizer1011->Add(m_staticText511, 1, wxALL | wxALIGN_CENTER_VERTICAL, 5);
00224
00225     m_ThYText = new wxTextCtrl(this, wxID_ANY, wxT("1"), wxDefaultPosition, wxDefaultSize, 0);
00226     bSizer1011->Add(m_ThYText, 5, wxALL | wxALIGN_RIGHT | wxALIGN_CENTER_VERTICAL, 5);
00227
00228     bSizer91->Add(bSizer1011, 1, wxEXPAND, 5);
00229
00230     wxBoxSizer* bSizer1021;
00231     bSizer1021 = new wxBoxSizer(wxHORIZONTAL);
00232
00233     m_staticText521 = new wxStaticText(this, wxID_ANY, wxT(""), wxDefaultPosition, wxDefaultSize, 0);
00234     m_staticText521->Wrap(-1);
00235     m_staticText521->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
    false, wxT("Cambria")));
00236
00237     bSizer1021->Add(m_staticText521, 1, wxALL | wxALIGN_CENTER_VERTICAL, 5);
00238
00239     m_PhiYText = new wxTextCtrl(this, wxID_ANY, wxT("1.57"), wxDefaultPosition, wxDefaultSize, 0);
00240     bSizer1021->Add(m_PhiYText, 5, wxALL | wxALIGN_RIGHT | wxALIGN_CENTER_VERTICAL, 5);
00241
00242     bSizer91->Add(bSizer1021, 1, wxEXPAND, 5);
00243
00244     bSizer4->Add(bSizer91, 0, wxEXPAND, 5);
00245
00246     wxBoxSizer* bSizer92;
00247     bSizer92 = new wxBoxSizer(wxVERTICAL);
00248
00249     m_staticText4 = new wxStaticText(this, wxID_ANY, wxT("Z"), wxDefaultPosition, wxDefaultSize, 0);
00250     m_staticText4->Wrap(-1);
00251     m_staticText4->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
    false, wxT("Cambria")));
00252
00253     bSizer92->Add(m_staticText4, 0, wxALL | wxALIGN_CENTER_HORIZONTAL, 5);
00254
00255     wxBoxSizer* bSizer104;
00256     bSizer104 = new wxBoxSizer(wxHORIZONTAL);
00257
00258     m_staticText54 = new wxStaticText(this, wxID_ANY, wxT("A"), wxDefaultPosition, wxDefaultSize, 0);
00259     m_staticText54->Wrap(-1);
00260     m_staticText54->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
    false, wxT("Cambria")));
00261
00262     bSizer104->Add(m_staticText54, 1, wxALL | wxALIGN_CENTER_VERTICAL, 5);
00263
00264     m_AZText = new wxTextCtrl(this, wxID_ANY, wxT("100"), wxDefaultPosition, wxDefaultSize, 0);
00265     bSizer104->Add(m_AZText, 5, wxALL | wxALIGN_RIGHT | wxALIGN_CENTER_VERTICAL, 5);
00266
00267     bSizer92->Add(bSizer104, 1, wxEXPAND, 5);
00268
00269     wxBoxSizer* bSizer1012;
00270     bSizer1012 = new wxBoxSizer(wxHORIZONTAL);
00271
00272     m_staticText512 = new wxStaticText(this, wxID_ANY, wxT(""), wxDefaultPosition, wxDefaultSize, 0);
00273     m_staticText512->Wrap(-1);
00274     m_staticText512->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
    false, wxT("Cambria")));
00275
00276     bSizer1012->Add(m_staticText512, 1, wxALL | wxALIGN_CENTER_VERTICAL, 5);
00277
00278     m_ThZText = new wxTextCtrl(this, wxID_ANY, wxT("0"), wxDefaultPosition, wxDefaultSize, 0);
00279     bSizer1012->Add(m_ThZText, 5, wxALL | wxALIGN_RIGHT | wxALIGN_CENTER_VERTICAL, 5);
00280
00281     bSizer92->Add(bSizer1012, 1, wxEXPAND, 5);
00282
00283     wxBoxSizer* bSizer1022;
00284     bSizer1022 = new wxBoxSizer(wxHORIZONTAL);
00285
00286     m_staticText522 = new wxStaticText(this, wxID_ANY, wxT(""), wxDefaultPosition, wxDefaultSize, 0);
00287     m_staticText522->Wrap(-1);
00288     m_staticText522->SetFont(wxFont(14, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
    false, wxT("Cambria")));
00289
00290     bSizer1022->Add(m_staticText522, 1, wxALL | wxALIGN_CENTER_VERTICAL, 5);
00291
00292     m_PhiZText = new wxTextCtrl(this, wxID_ANY, wxT("0"), wxDefaultPosition, wxDefaultSize, 0);
```

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00293     bSizer1022->Add(m_PhiZText, 5, wxALL | wxALIGN_RIGHT | wxALIGN_CENTER_VERTICAL, 5);
00294
00295     bSizer92->Add(bSizer1022, 1, wxEXPAND | wxALIGN_RIGHT, 5);
00296
00297     bSizer4->Add(bSizer92, 0, wxEXPAND, 5);
00298
00299     wxBoxSizer* bSizer27;
00300     bSizer27 = new wxBoxSizer(wxVERTICAL);
00301
00302     wxString animationBoxChoices[] = { wxT("Statyczna"), wxT("Animowana") };
00303     int animationBoxNChoices = sizeof(animationBoxChoices) / sizeof(wxString);
00304     animationBox = new wxRadioBox(this, wxID_ANY, wxT("Rodzaj animacji"), wxDefaultPosition,
      wxDefaultSize, animationBoxNChoices, animationBoxChoices, 1, wxRA_SPECIFY_COLS);
00305     animationBox->SetSelection(0);
00306     bSizer27->Add(animationBox, 0, wxALL | wxALIGN_CENTER_HORIZONTAL, 5);
00307
00308     wxString m_radioBox1Choices[] = { wxT("Linie"), wxT("Punkty") };
00309     int m_radioBox1NChoices = sizeof(m_radioBox1Choices) / sizeof(wxString);
00310     m_radioBox1 = new wxRadioBox(this, wxID_ANY, wxT("Rodzaj rysowania"), wxDefaultPosition,
      wxDefaultSize, m_radioBox1NChoices, m_radioBox1Choices, 1, wxRA_SPECIFY_COLS);
00311     m_radioBox1->SetSelection(0);
00312     m_radioBox1->SetFont(wxFont(10, wxFONTFAMILY_ROMAN, wxFONTSTYLE_NORMAL, wxFONTWEIGHT_NORMAL,
      false, wxT("Cambria")));
00313
00314     bSizer27->Add(m_radioBox1, 0, wxALL | wxALIGN_CENTER_HORIZONTAL | wxALIGN_CENTER_VERTICAL, 5);
00315
00316     bSizer4->Add(bSizer27, 1, wxEXPAND, 5);
00317
00318     bSizer1->Add(bSizer4, 1, wxALIGN_LEFT | wxEXPAND, 5);
00319
00320     this->SetSizer(bSizer1);
00321     this->Layout();
00322
00323     this->Centre(wxBOTH);
00324
00325     //connect-y
00326     this->Connect(wxEVT_CLOSE_WINDOW, wxCloseEventHandler(MyFrame1::MainFormClose));
00327     m_DisplayWindow->Connect(wxEVT_UPDATE_UI, wxUpdateUIEventHandler(MyFrame1::DisplayPanelRepaint),
      NULL, this);
00328
00329     m_XRotationSlider->Connect(wxEVT_SCROLL_TOP, wxScrollEventHandler(MyFrame1::XRot_Updated), NULL,
      this);
00330     m_XRotationSlider->Connect(wxEVT_SCROLL_BOTTOM, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00331     m_XRotationSlider->Connect(wxEVT_SCROLL_LINEUP, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00332     m_XRotationSlider->Connect(wxEVT_SCROLL_LINEDOWN, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00333     m_XRotationSlider->Connect(wxEVT_SCROLL_PAGEUP, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00334     m_XRotationSlider->Connect(wxEVT_SCROLL_PAGEDOWN, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00335     m_XRotationSlider->Connect(wxEVT_SCROLL_THUMBTRACK, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00336     m_XRotationSlider->Connect(wxEVT_SCROLL_THUMBRELEASE,
      wxScrollEventHandler(MyFrame1::XRot_Updated), NULL, this);
00337     m_XRotationSlider->Connect(wxEVT_SCROLL_CHANGED, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00338     m_YRotationSlider->Connect(wxEVT_SCROLL_TOP, wxScrollEventHandler(MyFrame1::YRot_Updated), NULL,
      this);
00339     m_YRotationSlider->Connect(wxEVT_SCROLL_BOTTOM, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00340     m_YRotationSlider->Connect(wxEVT_SCROLL_LINEUP, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00341     m_YRotationSlider->Connect(wxEVT_SCROLL_LINEDOWN, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00342     m_YRotationSlider->Connect(wxEVT_SCROLL_PAGEUP, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00343     m_YRotationSlider->Connect(wxEVT_SCROLL_PAGEDOWN, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00344     m_YRotationSlider->Connect(wxEVT_SCROLL_THUMBTRACK, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00345     m_YRotationSlider->Connect(wxEVT_SCROLL_THUMBRELEASE,
      wxScrollEventHandler(MyFrame1::YRot_Updated), NULL, this);
00346     m_YRotationSlider->Connect(wxEVT_SCROLL_CHANGED, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00347     m_ZRotationSlider->Connect(wxEVT_SCROLL_TOP, wxScrollEventHandler(MyFrame1::ZRot_Updated), NULL,
      this);
00348     m_ZRotationSlider->Connect(wxEVT_SCROLL_BOTTOM, wxScrollEventHandler(MyFrame1::ZRot_Updated),
      NULL, this);
00349     m_ZRotationSlider->Connect(wxEVT_SCROLL_LINEUP, wxScrollEventHandler(MyFrame1::ZRot_Updated),
      NULL, this);
00350     m_ZRotationSlider->Connect(wxEVT_SCROLL_LINEDOWN, wxScrollEventHandler(MyFrame1::ZRot_Updated),
      NULL, this);
00351     m_ZRotationSlider->Connect(wxEVT_SCROLL_PAGEUP, wxScrollEventHandler(MyFrame1::ZRot_Updated),
      NULL, this);
00352     m_ZRotationSlider->Connect(wxEVT_SCROLL_PAGEDOWN, wxScrollEventHandler(MyFrame1::ZRot_Updated),
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      NULL, this);
00353     m_ZRotationSlider->Connect(wxEVT_SCROLL_THUMBTRACK, wxScrollEventHandler(MyFrame1::ZRot_Updated),
      NULL, this);
00354     m_ZRotationSlider->Connect(wxEVT_SCROLL_THUMBRELEASE,
      wxScrollEventHandler(MyFrame1::ZRot_Updated), NULL, this);
00355     m_ZRotationSlider->Connect(wxEVT_SCROLL_CHANGED, wxScrollEventHandler(MyFrame1::ZRot_Updated),
      NULL, this);
00356
00357     m_AXText->Connect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::XA_Updated), NULL,
      this);
00358     m_AYText->Connect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::YA_Updated), NULL,
      this);
00359     m_AZText->Connect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::ZA_Updated), NULL,
      this);
00360
00361     m_ThXText->Connect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::XTheta_Updated),
      NULL, this);
00362     m_ThYText->Connect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::YTheta_Updated),
      NULL, this);
00363     m_ThZText->Connect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::ZTheta_Updated),
      NULL, this);
00364
00365     m_PhiXText->Connect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::XPhi_Updated),
      NULL, this);
00366     m_PhiYText->Connect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::YPhi_Updated),
      NULL, this);
00367     m_PhiZText->Connect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::ZPhi_Updated),
      NULL, this);
00368
00369     m_radioBox1->Connect(wxEVT_COMMAND_RADIOBOX_SELECTED,
      wxCommandEventHandler(MyFrame1::DotsLines_Updated), NULL, this);
00370     animationBox->Connect(wxEVT_COMMAND_RADIOBOX_SELECTED,
      wxCommandEventHandler(MyFrame1::Animation_Updated), NULL, this);
00371     ParamBox->Connect(wxEVT_COMMAND_RADIOBOX_SELECTED,
      wxCommandEventHandler(MyFrame1::ParamType_Updated), NULL, this);
00372
00373     m_timer.Start(10);
00374 }
00375
00376 MyFrame1::~MyFrame1()
00377 {
00378     //disconnect-y
00379     this->Disconnect(wxEVT_CLOSE_WINDOW, wxCloseEventHandler(MyFrame1::MainFormClose));
00380     m_DisplayWindow->Disconnect(wxEVT_UPDATE_UI,
      wxUpdateUIEventHandler(MyFrame1::DisplayPanelRepaint), NULL, this);
00381
00382     m_XRotationSlider->Disconnect(wxEVT_SCROLL_TOP, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00383     m_XRotationSlider->Disconnect(wxEVT_SCROLL_BOTTOM, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00384     m_XRotationSlider->Disconnect(wxEVT_SCROLL_LINEUP, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00385     m_XRotationSlider->Disconnect(wxEVT_SCROLL_LINEDOWN, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00386     m_XRotationSlider->Disconnect(wxEVT_SCROLL_PAGEUP, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00387     m_XRotationSlider->Disconnect(wxEVT_SCROLL_PAGEDOWN, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00388     m_XRotationSlider->Disconnect(wxEVT_SCROLL_THUMBTRACK,
      wxScrollEventHandler(MyFrame1::XRot_Updated), NULL, this);
00389     m_XRotationSlider->Disconnect(wxEVT_SCROLL_THUMBRELEASE,
      wxScrollEventHandler(MyFrame1::XRot_Updated), NULL, this);
00390     m_XRotationSlider->Disconnect(wxEVT_SCROLL_CHANGED, wxScrollEventHandler(MyFrame1::XRot_Updated),
      NULL, this);
00391
00392     m_YRotationSlider->Disconnect(wxEVT_SCROLL_TOP, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00393     m_YRotationSlider->Disconnect(wxEVT_SCROLL_BOTTOM, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00394     m_YRotationSlider->Disconnect(wxEVT_SCROLL_LINEUP, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00395     m_YRotationSlider->Disconnect(wxEVT_SCROLL_LINEDOWN, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00396     m_YRotationSlider->Disconnect(wxEVT_SCROLL_PAGEUP, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00397     m_YRotationSlider->Disconnect(wxEVT_SCROLL_PAGEDOWN, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00398     m_YRotationSlider->Disconnect(wxEVT_SCROLL_THUMBTRACK,
      wxScrollEventHandler(MyFrame1::YRot_Updated), NULL, this);
00399     m_YRotationSlider->Disconnect(wxEVT_SCROLL_THUMBRELEASE,
      wxScrollEventHandler(MyFrame1::YRot_Updated), NULL, this);
00400     m_YRotationSlider->Disconnect(wxEVT_SCROLL_CHANGED, wxScrollEventHandler(MyFrame1::YRot_Updated),
      NULL, this);
00401
00402     m_ZRotationSlider->Disconnect(wxEVT_SCROLL_TOP, wxScrollEventHandler(MyFrame1::ZRot_Updated),
      NULL, this);
00403     m_ZRotationSlider->Disconnect(wxEVT_SCROLL_BOTTOM, wxScrollEventHandler(MyFrame1::ZRot_Updated),
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      NULL, this);
00404    m_ZRotationSlider->Disconnect(wxEVT_SCROLL_LINEUP, wxScrollEventHandler(MyFrame1::ZRot_Updated),
      NULL, this);
00405    m_ZRotationSlider->Disconnect(wxEVT_SCROLL_LINEDOWN, wxScrollEventHandler(MyFrame1::ZRot_Updated),
      NULL, this);
00406    m_ZRotationSlider->Disconnect(wxEVT_SCROLL_PAGEUP, wxScrollEventHandler(MyFrame1::ZRot_Updated),
      NULL, this);
00407    m_ZRotationSlider->Disconnect(wxEVT_SCROLL_PAGEDOWN, wxScrollEventHandler(MyFrame1::ZRot_Updated),
      NULL, this);
00408    m_ZRotationSlider->Disconnect(wxEVT_SCROLL_THUMBTRACK,
      wxScrollEventHandler(MyFrame1::ZRot_Updated), NULL, this);
00409    m_ZRotationSlider->Disconnect(wxEVT_SCROLL_THUMBRELEASE,
      wxScrollEventHandler(MyFrame1::ZRot_Updated), NULL, this);
00410    m_ZRotationSlider->Disconnect(wxEVT_SCROLL_CHANGED, wxScrollEventHandler(MyFrame1::ZRot_Updated),
      NULL, this);
00411
00412    m_AXText->Disconnect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::XA_Updated),
      NULL, this);
00413    m_AYText->Disconnect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::YA_Updated),
      NULL, this);
00414    m_AZText->Disconnect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::ZA_Updated),
      NULL, this);
00415
00416    m_ThXText->Disconnect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::XTheta_Updated),
      NULL, this);
00417    m_ThYText->Disconnect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::YTheta_Updated),
      NULL, this);
00418    m_ThZText->Disconnect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::ZTheta_Updated),
      NULL, this);
00419
00420    m_PhiXText->Disconnect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::XPhi_Updated),
      NULL, this);
00421    m_PhiYText->Disconnect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::YPhi_Updated),
      NULL, this);
00422    m_PhiZText->Disconnect(wxEVT_COMMAND_TEXT_UPDATED, wxCommandEventHandler(MyFrame1::ZPhi_Updated),
      NULL, this);
00423
00424    m_radioBox1->Disconnect(wxEVT_COMMAND_RADIOBOX_SELECTED,
      wxCommandEventHandler(MyFrame1::DotsLines_Updated), NULL, this);
00425    animationBox->Disconnect(wxEVT_COMMAND_RADIOBOX_SELECTED,
      wxCommandEventHandler(MyFrame1::Animation_Updated), NULL, this);
00426    ParamBox->Disconnect(wxEVT_COMMAND_RADIOBOX_SELECTED,
      wxCommandEventHandler(MyFrame1::ParamType_Updated), NULL, this);
00427 }
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