**Design Document of GUI**

**Class diagram**

This diagram uses UML to represent the classes.

**Function template**

**Reset()**

**Purpose**: Reset widgets related to the User Interface.

**Prototype**: def reset()

**Inputs**: None.

**Outputs**: None.

**Restrictions**: None.

**Called by**: Reset button click and events

**Algorithm**: –

• Reset the Type of measurement option menu to “Voltage – AC”.

• Reset the Range option menu to 0.

• Reset the signal frequency text box to 0.

• Reset the signal frequency text box to 0

• Reset the signal frequency text box to 0

**2.3.7 drawScale**

**Purpose**: To handle the drawing of the time scale onto the graph display.

**Prototype**: private void drawScale( Graphics g, long width, long height )

**Inputs**: Graphics object to draw to, and the width and height of the destination object.

**Outputs**: None.

**Restrictions**: Graphics object must exist. Width and height variables must be valid otherwise the displayed timescale is undeﬁned.

**Called by**: The timeScaleImage Paint event.

**Calls**: None.

**Algorithm**: –

• Conﬁrm that the user wants to display the time scale. • Calculate what scale the ‘ticks’ will be. • Set up the drawing objects. • Draw all the ticks

**2.13.2 setGUI**

**Purpose**: To set the User Interface that the Error will display messages to.

**Prototype**: public static void setGUI( Form main )

**Inputs**: A Windows form to display error dialogs to.

**Outputs**: None.

**Restrictions**: None.

**Called by**: –

• MainEntry.Main()

• Error.Init()

**Calls**: None

**HUMAN INTERFACE DESIGN**

**Overview of User Interface**

Describe the functionality of the system from the user’s perspective. Explain how the user will be able to use your system to complete all the expected features and the feedback  information that will be displayed for the user.

**Screen Images**

Display screenshots showing the interface from the user’s perspective. These can be hand­ drawn or you can use an automated drawing tool.  Just make them as accurate as possible.  (Graph paper works well.)

**Screen Objects and Actions**

A discussion of screen objects and actions associated with those objects.

User Interface

The User Interface is a crucial aspect of the system in terms of both what the client wants and needs. For this reason there is an overview of the User Interface in the Software Requirements Speciﬁcation (SRS). This section will detail all aspects of the UI and its design, and thus will be more extensive than the SRS section. These documents also have diﬀerent target audiences and aims and thus diﬀerent User Interface sections are presented. The Graphical User Interface (GUI), for the purpose of this description, has been broken up into three main sections. These are:

• The Menus

• The Toolbar

• The Event List and Display

4.1 The Menus

This section of the GUI is simply the menu system our program will be using. There are a number of menu items, as detailed below, which the user will have access to. For simplicity, we have grouped similar items under the one menu in a similar way to many other Windows applications. This will increase the intuitiveness of the GUI and allow the the user to ﬁnd the desired item quickly and easily. A detailed description of the menu items and their functions follows:

4.2 The Toolbar

This section of the GUI contains various buttons, combo boxes and text displays which enable control of the program and give the user information.

4.3 The Event List and Display

This section of the GUI displays the Events on a scrolling graph and allows the user to restrict which Events are to be displayed.

4.3.1 The Event List

All possible events for display (as deﬁned in the appropriate conﬁg ﬁle) are listed here in a CheckBox list. The list is horizontally opposite the Graph Display, as shown in the diagram below. The vertical position of a speciﬁc Event corresponds to the vertical position of the Event on the Graph Display. The user can select which events to display by checking the appropriate CheckBoxes.

4.3.2 The Graph Display

This is where the simulation is graphically represented after recording or loading. The x-axis is a time scale (as shown across the top of the display). The y-axis is the Events, as described in the previous section. To select a speciﬁc area of the graph for zooming purposes, the user will follow these steps:

• Left Click on the desired start time, which will be displayed in the From display on the Toolbar.

• Right Click on the desired end time, which will be displayed in the To display on the Toolbar.

• Click the Zoom Region button on the toolbar, which will cause the Graph Display to zoom as appropriate.

• The user can then either select a new region to zoom, or can restore the default view by clicking the Zoom Full button on the Toolbar.