

Wire Handling System Monitoring Using National Instruments Hardware and Software

Presented at
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by
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Overview

- System that aids in maintaining compliance with UNOLS Safety Standards Appendix A
- Uses off the shelf hardware and a GUI based programming language (Labview)

Startup

Winch/Wire Monitoring System

DEMO

Select Operator then Select Wire Handling System

To Get Started

Main Menu

NIGHT/DAY	SELECT OPERATOR >>	SELECT WIRE HANDLING SYSTEM >>	Start Cast
DISPLAY CAST SUMMARY	DISPLAY LOGS	DISPLAY GRAPHS	CONFIGURE SYSTEM >>

START 11:16:10 24/10/2008

ACKNOWLEDGE ALARM

Wire Handling Configuration

0.0 SCOPE (m)

0.0 RATE (m/m)

0.0 Tension (lbs)

ZERO METER

WASH OFF

Operator

MAIN MENU

WiLoMon.lvproj/My Computer

Select Operator

The screenshot displays a monitoring application window titled 'Monitor' with a timestamp of 11:16:10 24/10/2008. The main area is a graph with 'Amplitude' on the y-axis (0 to 10000) and 'Time' on the x-axis. The x-axis has markers for 10:50:01.774 AM (5/7/1998), 12:00:00.000 AM (12/7/2003), 12:00:00.000 AM (12/5/2008), 12:00:00.000 AM (12/4/2013), and 8:47:48.835 AM (4/25/2019). A vertical bar on the right side of the graph shows a green level at the bottom.

CAST TIME	LOG FILE	OPERATOR	
00:00:06.0	Wire	Gustav	Cast Ended

SELECT OPERATOR [List Select]

- fnewbee (highlighted)
- soldhand
- admin

Control buttons: MOVE UP, MOVE DOWN, SELECT, LOG OUT.

Right sidebar controls:

- ACKNOWLEDGE ALARM
- Wire Handling Configuration
- 0.0 SCOPE (m)
- 0.0 RATE (m/m)
- 0.0 Tension (lbs)
- ZERO METER
- WASH OFF (with a green indicator)
- Operator
- MAIN MENU

Windows taskbar: WiLoMon.lvproj/My Computer

Select Wire Handling System

The interface displays a large graph with 'Amplitude' on the y-axis (0 to 10000) and 'Time' on the x-axis. The x-axis has markers for 10:50:01.774 AM (5/7/1998), 12:00:00.000 AM (12/7/2003), 12:00:00.000 AM (12/5/2008), 12:00:00.000 AM (12/4/2013), and 8:47:48.835 AM (4/25/2019). A vertical bar on the right side of the graph shows a small green segment at the bottom.

On the right side, there is a 'Monitor' section with the date and time '10:00:58 11/12/2008'. Below it is an 'ACKNOWLEDGE ALARM' button. Further down, the 'Wire Handling Configuration' section shows three large digital displays, all showing '0.0':

- SCOPE (m)
- RATE (m/m)
- Tension (lbs)

Below these displays are 'ZERO METER' and 'WASH OFF' buttons. A status bar shows 'fnewbee' as the operator.

At the bottom, there is a 'List Select' dropdown menu with the following options:

- CTD-STBD
- MOCNESS-STBD
- MOCNESS-Stern

Navigation buttons include 'MOVE UP', 'MOVE DOWN', 'SELECT', and 'LOG OUT'. A 'MAIN MENU' button is located at the bottom right.

CAST TIME	LOG FILE	OPERATOR
00:00:06.0	Wire	Gustav

WiLoMon.lvproj/My Computer

Cast Started

Observe Good Safety Practices -Clear deck of non-essential personnel, hardhats required

Monitor 10:04:56 11/12/2008

ACKNOWLEDGE ALARM

CTD-STBD

Wire Handling Configuration

0.0

SCOPE (m)

0.0

RATE (m/m)

0.0

Tension (lbs)

ZERO METER

WASH OFF

fnewbee

Operator

MAIN MENU

Amplitude

Time

CAST TIME	LOG FILE	OPERATOR	
00:00:06.0	Wire	Gustav	Cast Ended

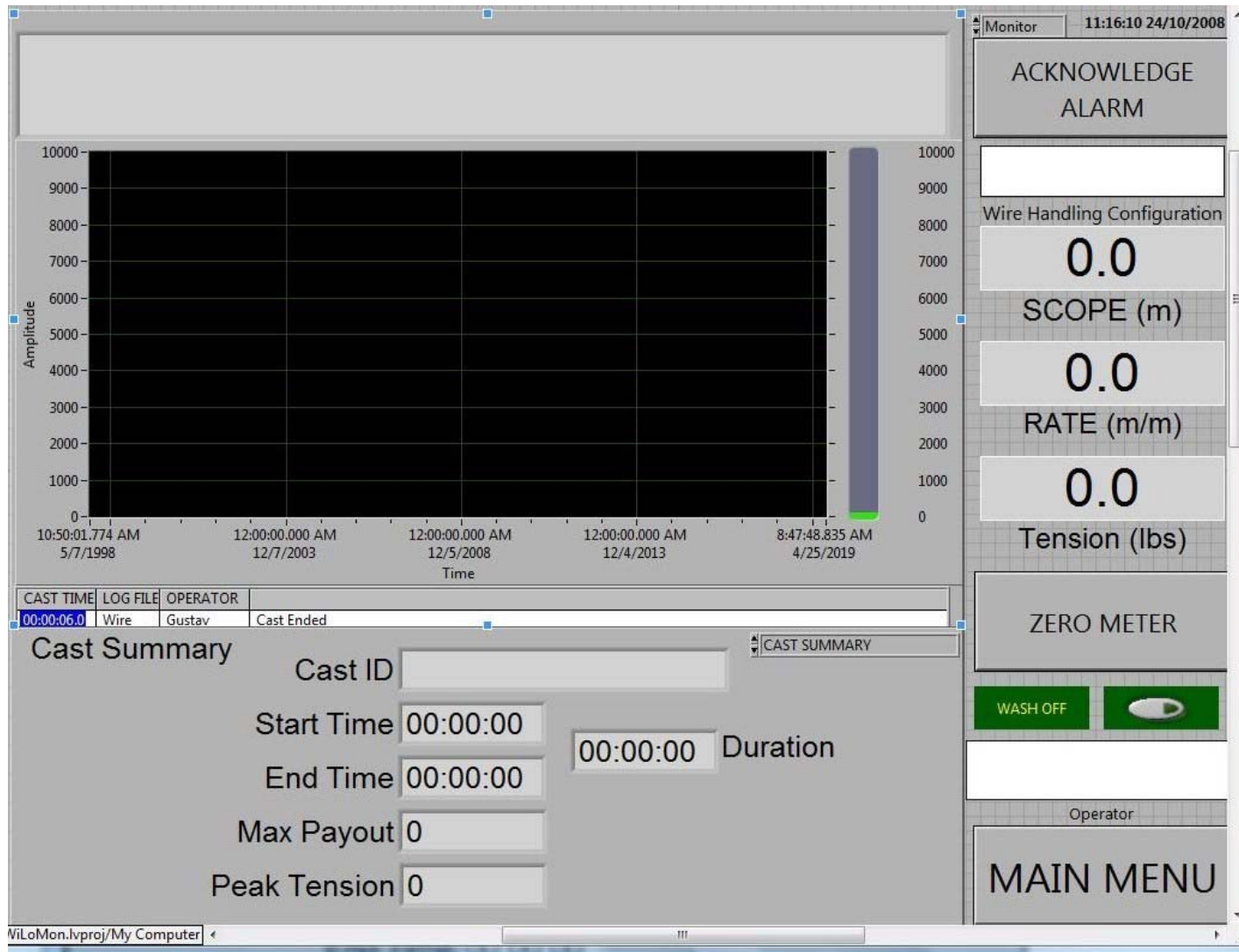
Graphs

Amplitude

Time

WiLoMon.lvproj/My Computer

End of Cast Summary



Display Logs

Monitor
10:04:56 11/12/2008

Observe Good Safety Practices -Clear deck of non-essential personnel, hardhats required

10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0

Amplitude

10:50:01.774 AM 5/7/1998 12:00:00.000 AM 12/7/2003 12:00:00.000 AM 12/5/2008 12:00:00.000 AM 12/4/2013 8:47:48.835 AM 4/25/2019

Time

CAST TIME	LOG FILE	OPERATOR	
00:00:06.0	Wire	Gustav	Cast Ended
00:00:05.0	Wire	Gustav	Peak Tension Exceeded 8227.5 lbs 1.0 meters
00:00:03.0	Wire	Gustav	Tension Detected, Recording Data
00:00:00.0	Winch	Gustav	Cast Started by operator Winch=DUSH5 Wire=32209082008 WinchFile=

LOGS

ACKNOWLEDGE
ALARM

CTD-STBD

Wire Handling Configuration

0.0

SCOPE (m)

0.0

RATE (m/m)

0.0

Tension (lbs)

ZERO METER

WASH OFF

fnewbee

Operator

MAIN MENU

Monitor

10:04:56 11/12/2008

WiLoMon.lvproj/My Computer

Configure System

Monitor 10:19:59 11/12/2008

ACKNOWLEDGE ALARM

Wire Handling Configuration

0.0
SCOPE (m)

0.0
RATE (m/m)

0.0
Tension (lbs)

ZERO METER

WASH OFF

admin
Operator

MAIN MENU

Amplitude

10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0

10:50:01.774 AM 12:00:00.000 AM 12:00:00.000 AM 12:00:00.000 AM 8:47:48.835 AM
5/7/1998 12/7/2003 12/5/2008 12/4/2013 4/25/2019

Time

CAST TIME	LOG FILE	OPERATOR	
00:00:06.0	Wire	Gustav	Cast Ended

CONFIGURE SYSTEM

WIRE WASH

ADVANCED CONFIGURATION >>

WiLoMon.lvproj/My Computer

Advanced Configuration

The screenshot displays a software interface for 'Advanced Configuration'. At the top right, a status bar shows 'Monitor' and the timestamp '10:22:18 11/12/2008'. Below this is a large 'ACKNOWLEDGE ALARM' button. The central area features a graph with 'Amplitude' on the y-axis (0 to 10000) and 'Time' on the x-axis. The x-axis has markers for '10:50:01.774 AM 5/7/1998', '12:00:00.000 AM 12/7/2003', '12:00:00.000 AM 12/5/2008', '12:00:00.000 AM 12/4/2013', and '8:47:48.835 AM 4/25/2019'. The graph area is currently empty. To the right of the graph, a vertical bar shows a value of 0.0. Below the graph is a table with columns 'CAST TIME', 'LOG FILE', 'OPERATOR', and 'Cast Ended'. The first row contains '00:00:06.0', 'Wire', 'Gustav', and 'Cast Ended'. Below the table is a section titled 'LEVEL-2 ADVANCED CONFIGURATION' with a dropdown menu set to 'ADV-CONF'. This section contains eight buttons: 'BLOCK MAINTAINENCE', 'WIRE MAINTAINENCE', 'WINCH MAINTAINENCE', 'USER MAINTAINENCE', 'HANDELING SYSTEM MAINTAINENCE', and 'COMMUNICATIONS SETTINGS'. On the right side, there are three large digital displays showing '0.0' for 'SCOPE (m)', 'RATE (m/m)', and 'Tension (lbs)'. Below these is a 'ZERO METER' button. Further down is a 'WASH OFF' button with a green indicator light. At the bottom right, the operator name 'admin' is displayed above the label 'Operator', with a 'MAIN MENU' button below it. The bottom status bar shows the file path 'WiLoMon.lvproj/My Computer'.

CAST TIME	LOG FILE	OPERATOR	Cast Ended
00:00:06.0	Wire	Gustav	Cast Ended

LEVEL-2 ADVANCED CONFIGURATION			
BLOCK MAINTAINENCE	WIRE MAINTAINENCE	WINCH MAINTAINENCE	USER MAINTAINENCE
HANDELING SYSTEM MAINTAINENCE	COMMUNICATIONS SETTINGS		

SCOPE (m): 0.0
RATE (m/m): 0.0
Tension (lbs): 0.0

Operator: admin

MAIN MENU

Wire Maintenance Menu

Monitor 10:23:35 11/12/2008

ACKNOWLEDGE ALARM

Wire Handling Configuration

0.0
SCOPE (m)

0.0
RATE (m/m)

0.0
Tension (lbs)

ZERO METER

WASH OFF

admin
Operator

MAIN MENU

Amplitude

10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0

10:50:01.774 AM 12:00:00.000 AM 12:00:00.000 AM 12:00:00.000 AM 8:47:48.835 AM
5/7/1998 12/7/2003 12/5/2008 12/4/2013 4/25/2019

Time

CAST TIME	LOG FILE	OPERATOR	
00:00:06.0	Wire	Gustav	Cast Ended

WIRE MAINTAINENCE

NEW	EDIT	MEGGER RESISTANCE TEST	LUBRICATE
TERMINATE	SUB-DIVIDE	SPOOL UNSPOOL	

WIRE MAINT

WiLoMon.lvproj/My Computer

Wire Maintenance Edit

Keyboard 11:16:10 24/10/2008

Esc F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12

` 1 2 3 4 5 6 7 8 9 0 . = ←

Tab q w e r t y u i o p []

Caps a s d f g h j k l ; ' Enter

Shift z x c v b n m , . / Shift \

Ctrl Alt My-T-Touch Alt Ctrl

WIRE MAINTAINENCE

Wire ID Number
MM/DD/YYYY

Wire Type
0

Manufacturer
0

Manufacturers Part Number
0

Nominal Breaking Load
0

Date Of Manufacture
MM/DD/YYYY

Manufacturers Ultimate Load
0

"d" outside diameter
0

"d1" diameter of largest strand
0

Tested By
WIRE MAINT EDIT

Last Test Date
MM/DD/YYYY

SWL Test Date
MM/DD/YYYY

Current Length Entry Date
MM/DD/YYYY

Actual Breaking Load (lbs)
0

SWL Test (lbs)
0

Current Length (m)
0

Conductor Cable

ACKNOWLEDGE ALARM

Wire Handling Configuration

0.0
SCOPE (m)

0.0
RATE (m/m)

0.0
Tension (lbs)

ZERO METER

WASH OFF

WASH OFF

Operator

MAIN MENU

WiLoMon.lvproj/My Computer

Winch Maintenance Edit

Keyboard 11:16:10 24/10/2008

Esc F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12

` 1 2 3 4 5 6 7 8 9 0 . = ←

Tab q w e r t y u i o p []

Caps a s d f g h j k l ; ' Enter

Shift z x c v b n m , . / Shift \

Ctrl Alt My-T-Touch Alt Ctrl

Display Name
Inventory ID
Last SWL Test Date
MM/DD/YYYY
Last Tested SWL (lbs)
0

Manufacturer
Model
Serial Number
Manufacturers SWL (lbs)
Manufacturers Ultimate Load (lbs)

Tension Available WINCH-MAINT-EDIT

Tension Method
Voltage
Cal Method
2 Point
Low Weight Low Value High Weight High Value
0 0 0 0
Slope(m) Offset(b)
1680.32786 119.344

Rate Available PPM 0

ACKNOWLEDGE ALARM

Wire Handling Configuration

0.0
SCOPE (m)

0.0
RATE (m/m)

0.0
Tension (lbs)

ZERO METER

WASH OFF

Operator

MAIN MENU

WiLoMon.lvproj/My Computer

User Maintenance

Keyboard 11:16:10 24/10/2008

Esc F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12

` 1 2 3 4 5 6 7 8 9 0 . = ←

Tab q w e r t y u i o p []

Caps a s d f g h j k l ; ' Enter

Shift z x c v b n m , . / Shift \

Ctrl Alt My-T-Touch Alt Ctrl

USER MAINT EDIT

Last Name	First Name	User ID
<input type="text"/>	<input type="text"/>	<input type="text"/>
P.I.N	Security Level	Training Level
<input type="text" value="0"/>	<input type="text" value="Operator"/>	<input type="text" value="New"/>
Time/Date Created	Created By	
<input type="text" value="00:00:00.000 PM"/> <input type="text" value="MM/DD/YYYY"/>	<input type="text"/>	

ACKNOWLEDGE ALARM

Wire Handling Configuration

0.0
SCOPE (m)

0.0
RATE (m/m)

0.0
Tension (lbs)

ZERO METER

WASH OFF

Operator

MAIN MENU

WiLoMon.lvproj/My Computer

Handling System Maintenance

The screenshot displays a touch-screen interface for handling system maintenance. The interface is divided into several sections:

- Virtual Keyboard:** A full QWERTY keyboard is overlaid on the screen. The F5 and F8 keys are highlighted with a blue background. The text "My-T-Touch" is visible in the center of the keyboard area.
- Status Bar:** Located at the top right, it shows "Monitor" and the time "10:27:35 11/12/2008".
- Control Panel (Right Side):**
 - A button labeled "ACKNOWLEDGE ALARM".
 - A white input field.
 - A section titled "Wire Handling Configuration" with three read-only displays:
 - SCOPE (m) showing 0.0
 - RATE (m/m) showing 0.0
 - Tension (lbs) showing 0.0
 - A button labeled "ZERO METER".
 - A green button labeled "WASH OFF" with a green indicator light.
 - A white input field containing the text "admin".
 - The text "Operator" below the input field.
 - A large button labeled "MAIN MENU".
- Data Entry Form (Bottom Left):**
 - A header bar with "CAST TIME LOGOUT OPERATOR", "00:00:06.0", "Wire", "Gustav", and "Cast Ended".
 - A section titled "HAND SYS EDIT" with an "Active" indicator (a green indicator light).
 - Fields for "System Name", "Winch", "Wire", "Block(s) Comma delimited List", and "Frame", each with a white input field.
- System Information (Bottom Left):** A small window showing "WiLoMon.lvproj/My Computer".