LPARD-TDF-2012

Alarm Memo

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R002-14: A loud aural signal shall be provided that SCADA uses for alarm conditions which the SCADA system is able to silence until a subsequent alarm condition occurs.

This memo discusses a way to implement R002-14. This specification focuses on a software solution to the alarm problem. This solution assumes that the software has access to loud speakers on the laptop.

According to the RF Link Spec, Error packets must be sent from the boat to the shore whenever a fault occurs. When the software receives an Error packet, the software should do two things:

1. Emit a loud signal. We have done sound alerts in testing our XBee using the ‘winsound’ package in Python. Since our system is dedicated to Windows, this a reasonable and easy solution.
2. Display a pop-up box in front of the user. This box should display a message informing the user a fault occurred, a message stating what the fault was (according to the error code in the packet), and a button labeled “Silence Alarm”. The button, when pressed, should silence the alarm but not close the pop-up window. The user should then be able to click the ‘x’ at the top right of the window to continue using the program.

One caveat for this design is that the RF Link must be established for any errors to be reported. Therefore, the system should also produce an alarm when the RF Link is lost as well as when an Error packet is received. This is appropriate since all control of the boat except manual control is done through the RF link and losing that link should be a serious fault.