

RADIO FREQUENCY TRANSCEIVERS: A BETTER REPLACEMENT FOR DATA CABLES IN COMPUTER BASED DOT MATRIX DISPLAY SYSTEMS

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ABSTRACT

This paper highlights the disadvantages of using data cables in interfacing dot matrix display to computer and proposes a better method of doing the same. The method being used presently utilizes cables as links between the computer and the display unit. These cables have drawbacks associated with them. Among these drawbacks are signal losses or attenuation, difficulty in deployment, troubleshooting and maintenance. These contribute to the high cost of implementation especially in a situation where multiple displays are to be installed. The Radio Frequency (RF) transceiver presented in this paper has a number of features that eliminate totally the problems associated with the use of data cables. These features include in-built error checking capability, high sensitivity and long transmission range, self controlled protocol translation that is easy to use, standard UART interface that is compatible with microcontrollers among others. Multiple displays can also be controlled by a single host computer because the RF has both multiple channels and baud rates. Visual basic (VB).net is employed to develop the graphical user interface used in the implementation of the new proposed system. Communication is made through the RS232 interface protocol between the computer and RF transceiver. ATMEL microcontroller that supports serial communication, interfaced with liquid crystal display and non-volatile RAM, is used to demonstrate how the RF transceivers work.

Keywords: Data cables, Radio frequency transceivers, Signal losses, Dot-matrix display