

Development of a Real-time Communication Method using Ethernet

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Real-time communications typically have either guaranteed bandwidth or relied on specialized operating systems and device drivers. The former is not suitable for robot control and the latter makes it difficult to reuse software. Using an open source operating system (Linux), standard middleware (CORBA) on top of a global standard communications media (Ethernet) we developed a cost effective real-time communications system for use in a wide variety of embedded systems such as robotics, consumer electronics and vehicles.



Developed embedded boards(55[mm]×95[mm])
(SH-4 CPU board(left) and stackable peripheral boards)

Two-Way Communications by using Light-Controlled Photo-Switch

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A wavelength-divided multiplex interactive light communication paths for $1.31\mu\text{m}$ and $1.55\mu\text{m}$ bands simultaneously switched by use of control light (660nm) have been developed using a novel palmtop-size photo-switch based on light-controlled switching of light path. The study will provide a key device for implementing the commercialization of “light-tagged photo packet communication system”.

Combined N units of light-controlled photo-switch, is to build up an interactive optical communication system of (N+1:1) configuration, and simultaneous illumination with signal light and control light used as a light tag enables to realize an interactive optical packet communications for target destinations through light control only, which will be open the way to provide a low cost key device for the development of next generation optical communications system.



A prototype of all-optical photo-switch; an outward show

Width: 120mm, Length: 80mm, Height: 27mm /
Volume: ~ 260ml