Abstract

640 x 480 Real-Time Range Finder Using High-Speed Readout Scheme and Column-Parallel Position Detector

Y. Oike\textsuperscript{1}, M. Ikeda\textsuperscript{1,2}, and K. Asada\textsuperscript{1,2}

\textsuperscript{1}Dept. of Electronic Engineering, University of Tokyo
\textsuperscript{2}VLSI Design and Education Center (VDEC), University of Tokyo
7–3–1 Hongo, Bunkyo-ku, Tokyo 113-8656, Japan

In this paper, we present the first real-time range finder with the capability of VGA (640 x 480) resolution based on a light-section method. We propose an adaptive thresholding circuit and column-parallel time-domain approximate ADCs to realize high-speed readout for real-time range finding. Sub-pixel position calculation based on intensity profile by the readout scheme achieves high-accuracy range finding. A column-parallel position detector suppresses redundant data transmission for a real-time measurement system.