

Embedded Smart Camera Performance Analysis

Abstract:

Increasingly powerful integrated circuits are making an entire range of new applications possible. Recent technological advances are enabling a new generation of smart cameras that represent a quantum leap in sophistication. While today's digital cameras capture images, smart cameras capture high-level descriptions of the scene and analyze what they see. A smart camera combines video sensing, high-level video processing and communication within a single embedded device. Smart cameras not only capture images, they further perform high-level image processing on-board, and transfer the data via network. In this project, an embedded smart camera utilizing the use of a single board computer (SBC) and GNU/Linux is presented. This paper presents the performance analysis on processing speed and CPU utilization for an embedded smart camera using three different computer platforms. Two Single Board Computers from Technologic Systems, TS-5500 and TS-7200 are being introduced in this paper. The hardware and software design as well as the experimental results are also presented.