Reconfigurable Implementation of a Moving Object Detection Algorithm for a Small Size Soccer Playing Robot

Abstract

Speed and accuracy are the two most important factors in the success of a soccer playing robot team. Software implementation of many parts of this system may cause delay which is undesirable in the environment in which the best decision is the fastest one.

One of these parts is image processing for the detecting of moving and stationary objects that is very time-consuming task and needs many interactions between CPU and Memory. We can minimize this delay by transferring the software implementation to a hardware which can perform the task much faster. As the environment and our needs are subject to change, a reconfigurable hardware is the most suited platform which can be adapted to any other related tasks. The processing is implemented on a FPGA board which grabs the picture from the camera and outputs the position of a predefined color-coded object in the image buffer.