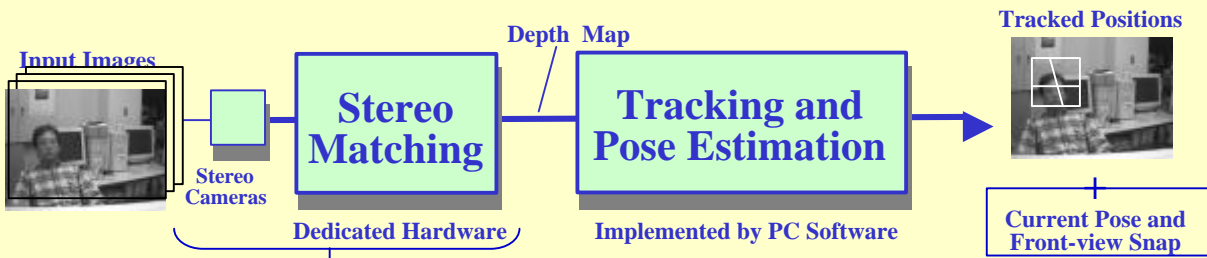


Human Head Tracking by Real-time Stereo Vision

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(1) Abstract

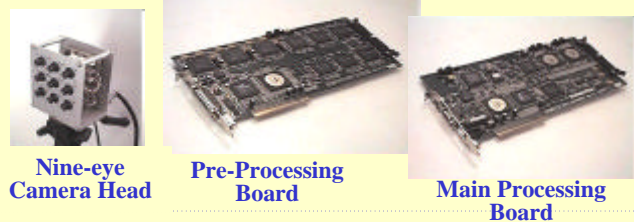
We demonstrate a human head tracking system using the real-time stereo machine named SAZAN. In this system, the location of the human head is detected and its head pose is estimated continuously. In addition, the front-view images are detected by checking if it is facing for the front. Usually, it is not easy to detect the human head and its pose only from the intensity image. In our demo, by using the depth images, the detection of the head and its direction is effectively and robustly performed.



(2) New Ideas

- Depth-driven Shape Filtering
- Head Pose Estimation by Depth value
- Front-view Detection by Face Symmetry

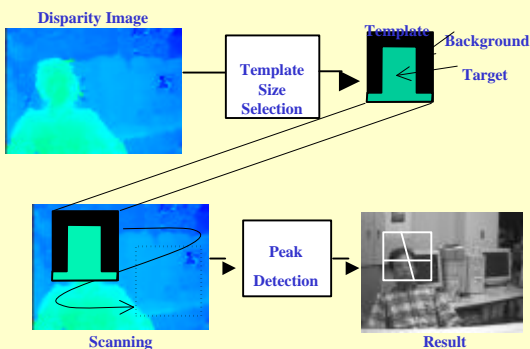
Nine-Eye Stereo Machine(SAZAN)



(3) Basic Functions

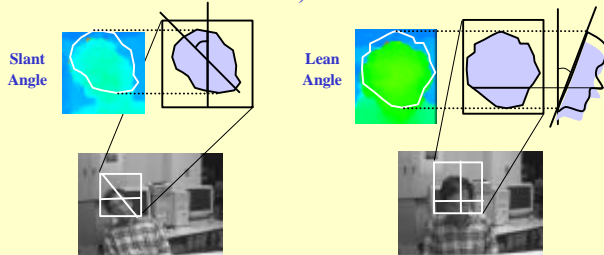
Tracking of the Human Head

The candidate points of human head are easily detected by using the depth-driven template filter which is properly adjusted in size from the depth information. Then, the detecting speed and reliability are remarkably increased



Head Pose Estimation

By analyzing the shape and disparities of the detected human head region, we can estimate the head pose; the slant angle(how he turns his head right or left) and the lean angle(how he leans his head forward or backward).



Front-view Detection

From many face directions, the good front-view images are captured by checking both the head pose and its horizontal symmetry. For measuring the symmetry, the information of the intensity image is utilized here. It is useful for capturing automatically the best photo shot of the targeted human face.

