A Two Handed-3D Interaction Technique for Controlling an Ambient Environment

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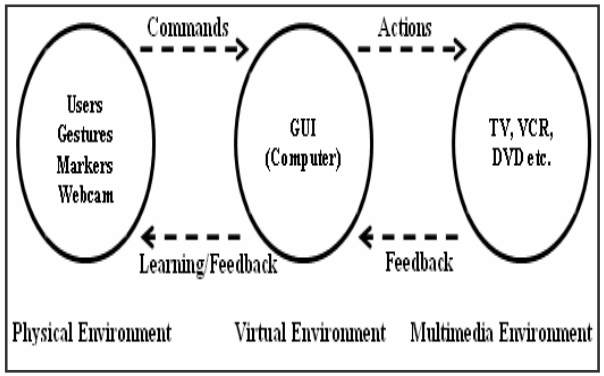
General System Overview:

A user performs gestures with markers in both hands. These gestures are detected by a webcam and are interpreted by the program.



ARToolkit markers:

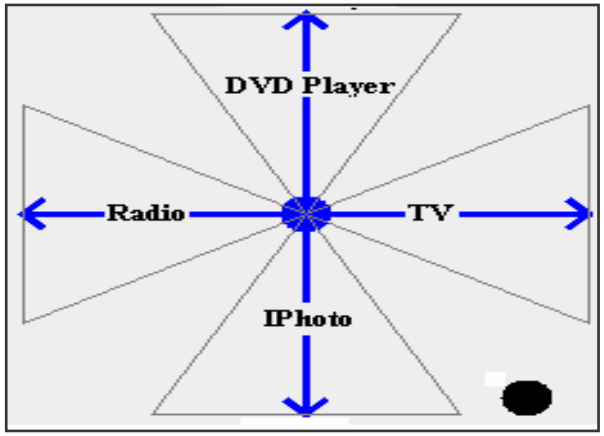
Both markers contain two patterns:

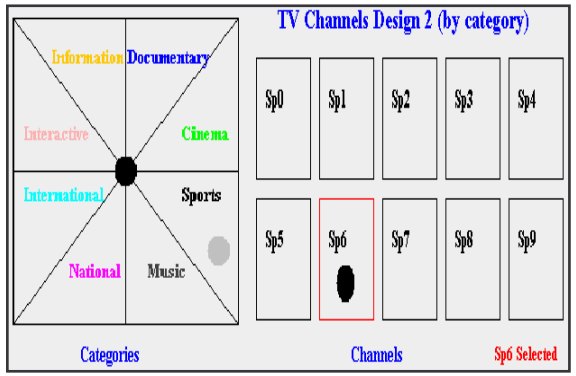
- NR & NL Patterns: for navigation

- OK pattern (right hand only) : for the selection of an opeation.

General Control Menu:

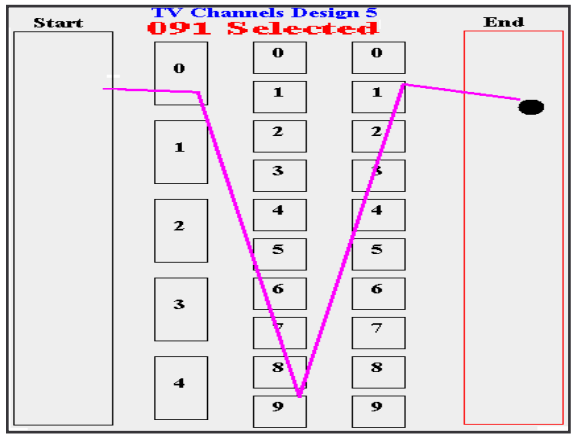
The black point corresponds to the right marker. The triangles define the operation regions. The user moves this marker in the appropriate region. The OK pattern is used to display the GUI of selected device.





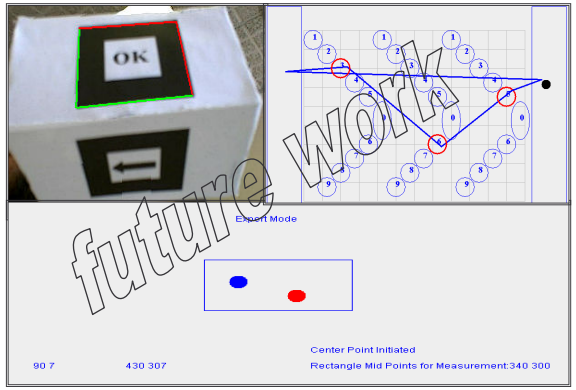
Selecting Channels by category:

The left hand marker serves for category navigation. The right hand marker is used for the specific channel selection. When the left hand marker moves in a category, the corresponding channels are displayed on the right side then the right hand marker is used for the final selection.



Selecting Channels by Numbers:

The operation starts from the left side and ends at the right side. Selection is performed by crossing the labels in the columns. The mark and the selected numbers are displayed on the GUI to provide feedback.



Future Work:

We are planning to improve and evaluate these designs and to apply these techniques to other applications. This also includes improvement of the markers and the gestures.