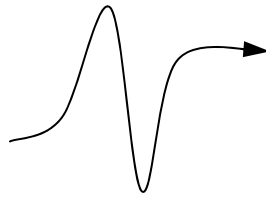
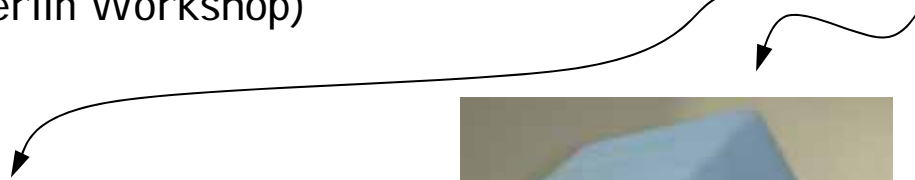




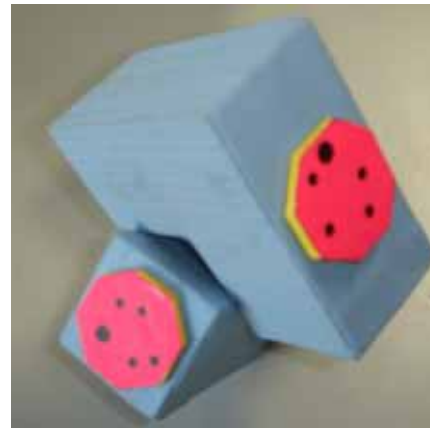
Before Japan (Berlin Workshop)



On the way (Tokyo airport)



In Japan (2.5 strangers in Tokyo)



In Japan (PenTag)

from Sep. 2005 till July 2006

Laboratory for Digital Systems and Environments



MIXED REALITY FIELD INFORMATICS GAREKI ENGINEERING PRODUCT INFORMATION SCIENCE

システム環境 情報学

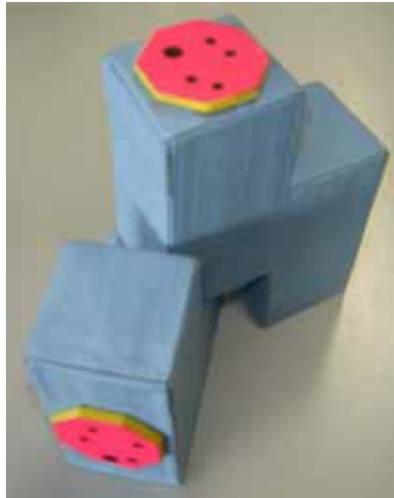
Graduate School of Information Science and Technology Hokkaido University



DeMaMech 2005 - Steffen Heyer

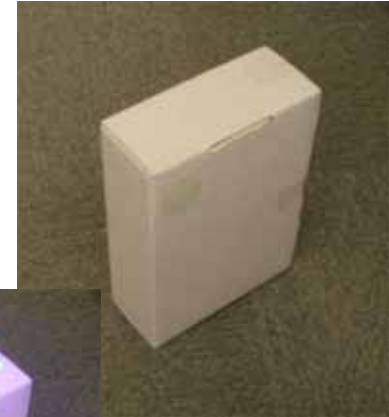
北海道大学大学院情報科学研究科

PenTag: Object label for position/orientation/ID recognition

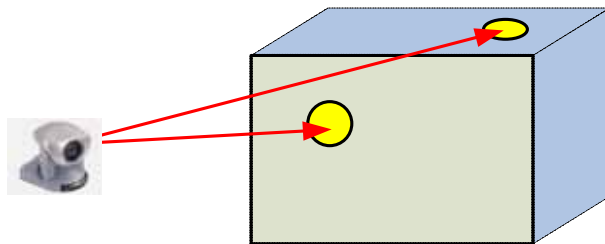


- Disadvantages:
- 3mm height,
 - limited distinguishable number,
 - pink

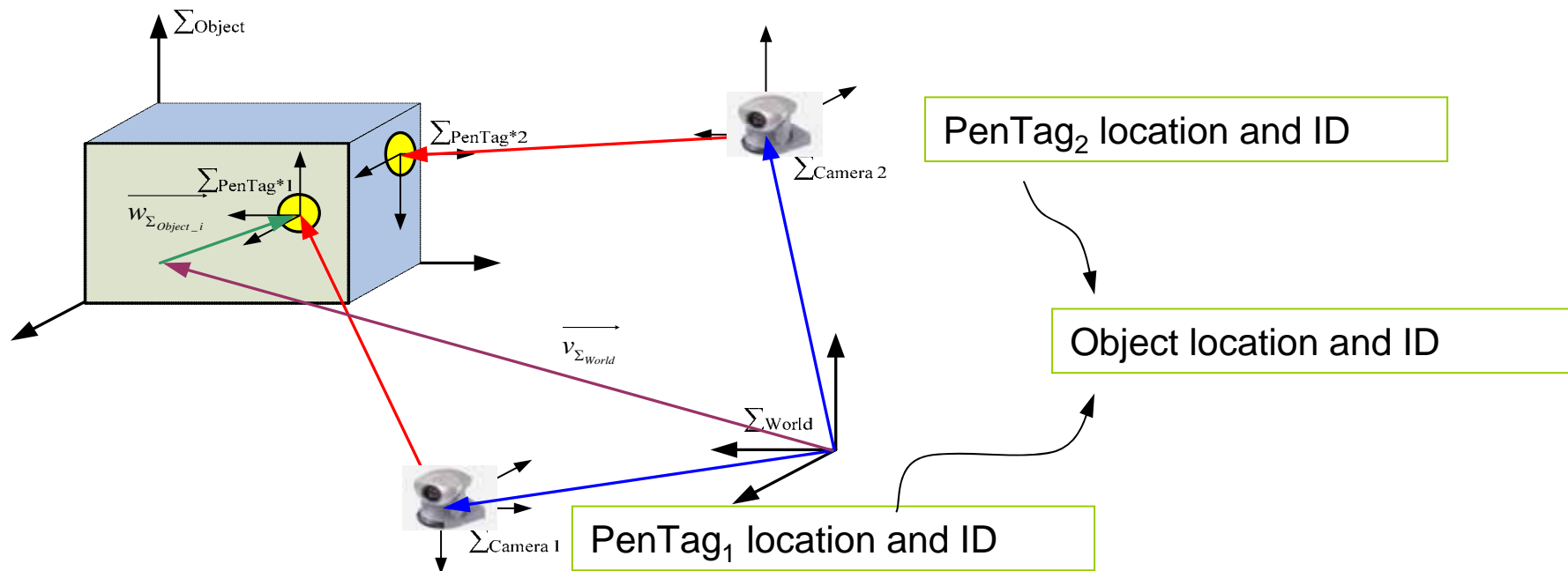
old -----> new



- Changing's:
- fluorescing ink + UV-source
 - Multiple use of PenTag on an object for elimination of the geometric invariance and increase number of possible objects



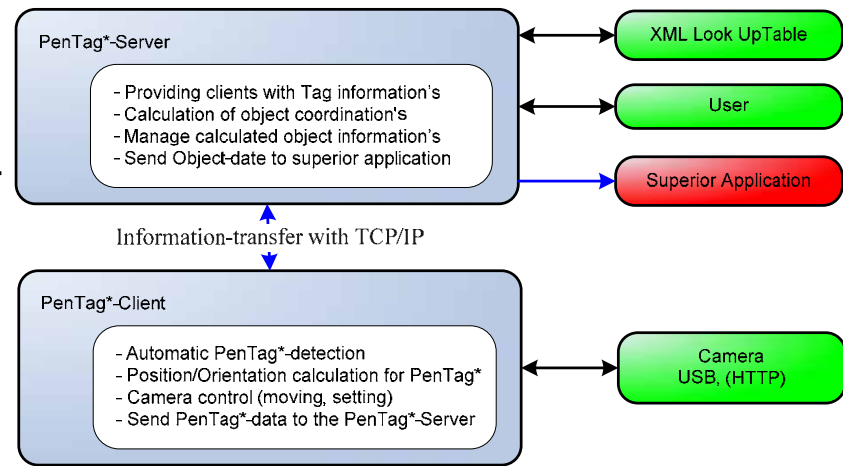
Construction of a workspace model by using PenTag (2)



$$\vec{v}_{\Sigma_{World}} = T_{\Sigma_{Camera_i} \rightarrow \Sigma_{World}} \cdot T_{\Sigma_{PenTag^i} \rightarrow \Sigma_{Camera_i}} \cdot \left(T_{\Sigma_{PenTag^i} \rightarrow \Sigma_{Object}} \right)^{-1} \cdot \vec{w}_{\Sigma_{Object_i}}$$

Vectors from the world coordination origin to a Object coordination origin

- PenTags are tracked with cameras (controlled by PT-clients)
- Gathered information's send to the PT-server (with TCP/IP)
- Detecting object ID and calculation of object-location
- Obtained information's send to a superior application (3D displaying)



Overall layout of the PenTag Programs

Construction of a workspace model by using PenTag (2)



Student life in Japan

Just to much for one page!