User-Adaptive Deskwork Support System
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In our daily life, people spend a great deal of time at a desk. It is therefore especially important to support deskwork by intelligent systems. We have proposed "Attentive Workbench (AWB)," a deskwork support system that helps a user from both physical and informational viewpoint.

The objective of this study is to realize a support system that delivers necessary objects to a user (Fig.1). To meet this end, the system must estimate the target that the user intends.

In this study, we adopt following 3 approaches: (1) To improve the accuracy of recognition of the direction of pointing by estimating the user's subjective pointing direction from little information (Fig.2). (2) To decrease the influence of the error of pointing gesture by integrating the spatial information from sensors with the temporal information from the user's action sequences based on the dynamic Bayesian network. (3) To reduce the load on the estimation by arranging the self-moving trays according to the user's action sequences and pointing property.

The system can estimate the target object appropriately based on the user's pointing gesture by integrating these approaches (Fig.3).

Keywords: Attentive Workbench (AWB), pointing gesture, Dynamic Bayesian Network

References
1) Yusuke Tamura, Masao Sugi, Jun Ota, and Tamio Arai: "Deskwork Support System Based on the Estimation of Human Intentions," Proceedings of the 13th IEEE International Workshop on Robot and Human Interactive Communication, pp.413-418, 2004.
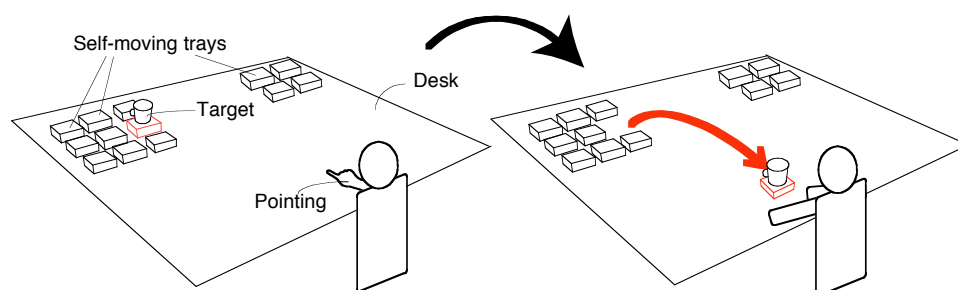
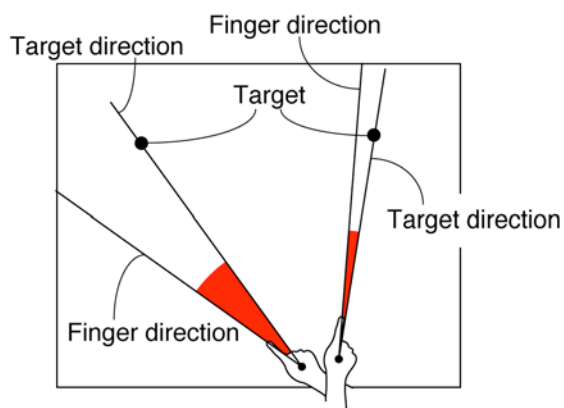Fig.1 Overview of deskwork support with self-moving trays

Fig.2 Relation between target direction and finger direction

Fig.3 Target estimation based on pointing gesture