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<th>Augmentable: seamless table-top projection interface</th>
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Augmentable – Seamless Table-top Projection Interface

I. Introduction

Augmentable is a seamless human-computer interface that augments the physical workspace with interactive digital information. Using an overhead camera-projector pair, the system senses visual inputs on the table surface, analyzes the context of interaction, and overlays the physical surfaces with interactive projections.

Based on this framework, we devised several applications that demonstrate novel and effective interactions that seamlessly integrates information with the physical world.

II. Algorithms

- Adaptive Thresholding
- Segmentation & Filtering
- Contour Analysis
- Context Analysis

Camera inputs
Depth & RGB images
Segmented contours
Labeled features
Visual feedback

Output
Filtered images
Contours
Labeled features

III. Setup

Backend computer
Depth-sensing camera
Pico projector
Support
Table surface
Interaction space

IV. Applications

- Adaptive finger-based menu UI
- Cross-screen mobile device interactions
- Vertical browsing
- Augmented gravitation

V. Conclusion & Ongoing Work

We have developed a novel human-computer interface that augments table surfaces with interactive projections. Our system enables direct manipulation of digital information in the context of its physical surfaces, extending the interactions beyond conventional touch-based gestures.

Our current work explores usable applications that facilitate complex user tasks which are otherwise not achievable using 2D touch screens.