

# Mixed-Reality Tabletop

This project investigates a new immersive learning paradigm that goes beyond traditional whiteboards, enabling interaction between users and mixed-reality objects using a low-cost infrastructure.

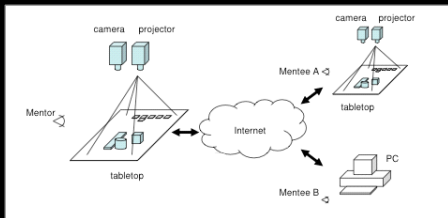
## Overview

The Mixed-Reality Tabletop (MRT) is a concept that

- provides a **common area** for interaction without shifting attention,
- composes and synchronizes **mixed-reality** media over a network, and
- creates a **low-cost** scalable system.

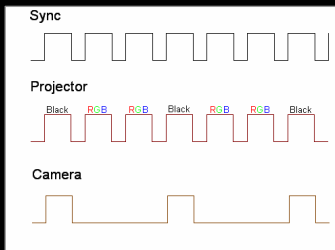


## System Architecture

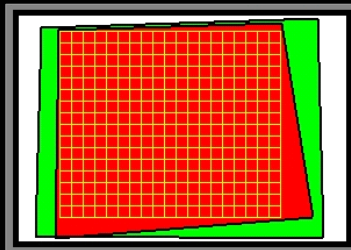


MRT stations contain a tabletop, camera, and projector to provide intuitive, device-free interaction. Stations are networked and support both virtual and real objects on each tabletop. Moreover, a software toolkit is provided for fast application development.

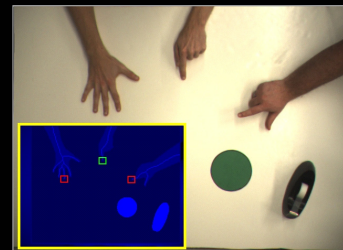
## Key Components



Synchronization: the camera and projector are synchronized to prevent an “infinite mirror” effect.

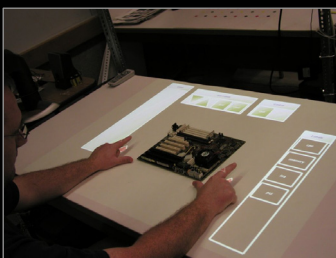


Calibration: from an overhead view of the camera area (green), projector area (red), tabletop (white), a calibrated grid (yellow) is computed during initialization.

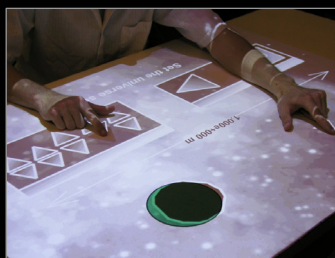


User Interface: the API provides hand and object tracking functionality.

## Applications



Interactive Classroom.



Interactive Physics.

### Mixed Reality Project Team

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<http://www.es.purdue.edu/~aliaga/mrt.htm>

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