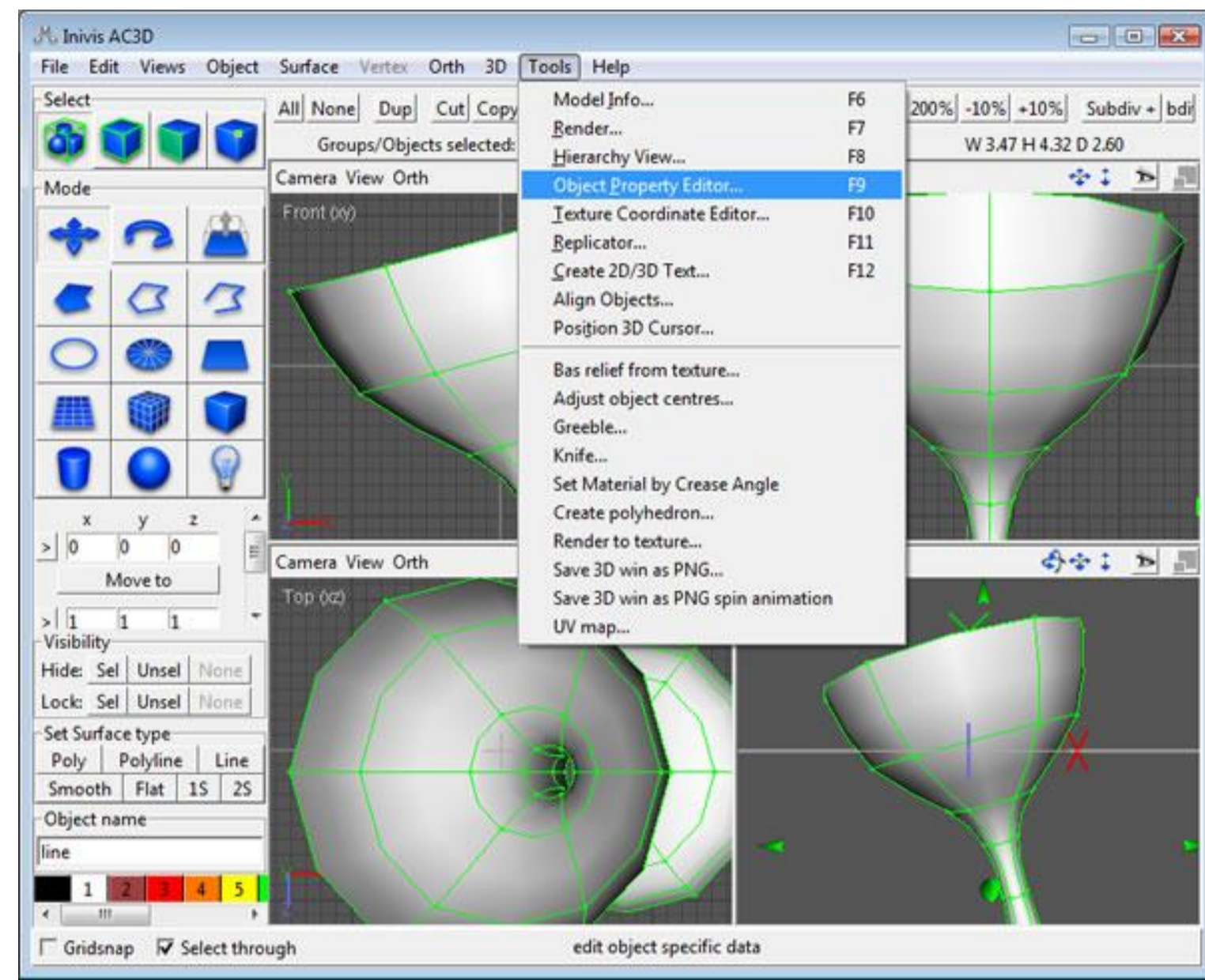


Enjoying Virtual Handcrafting with ToolDevice



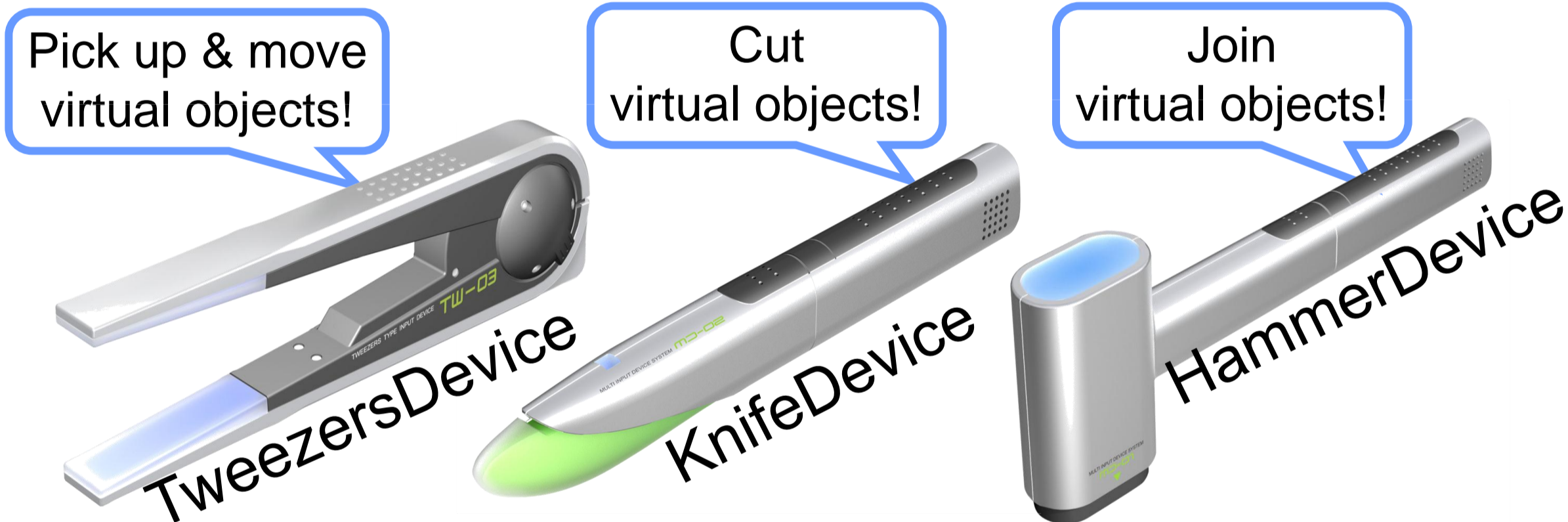
Ryan Arisandi, Yusuke Takami, Mai Otsuki,
Asako Kimura, Fumihisa Shibata, Hideyuki Tamura (Ritsumeikan Univ.)

Introduction + Problem



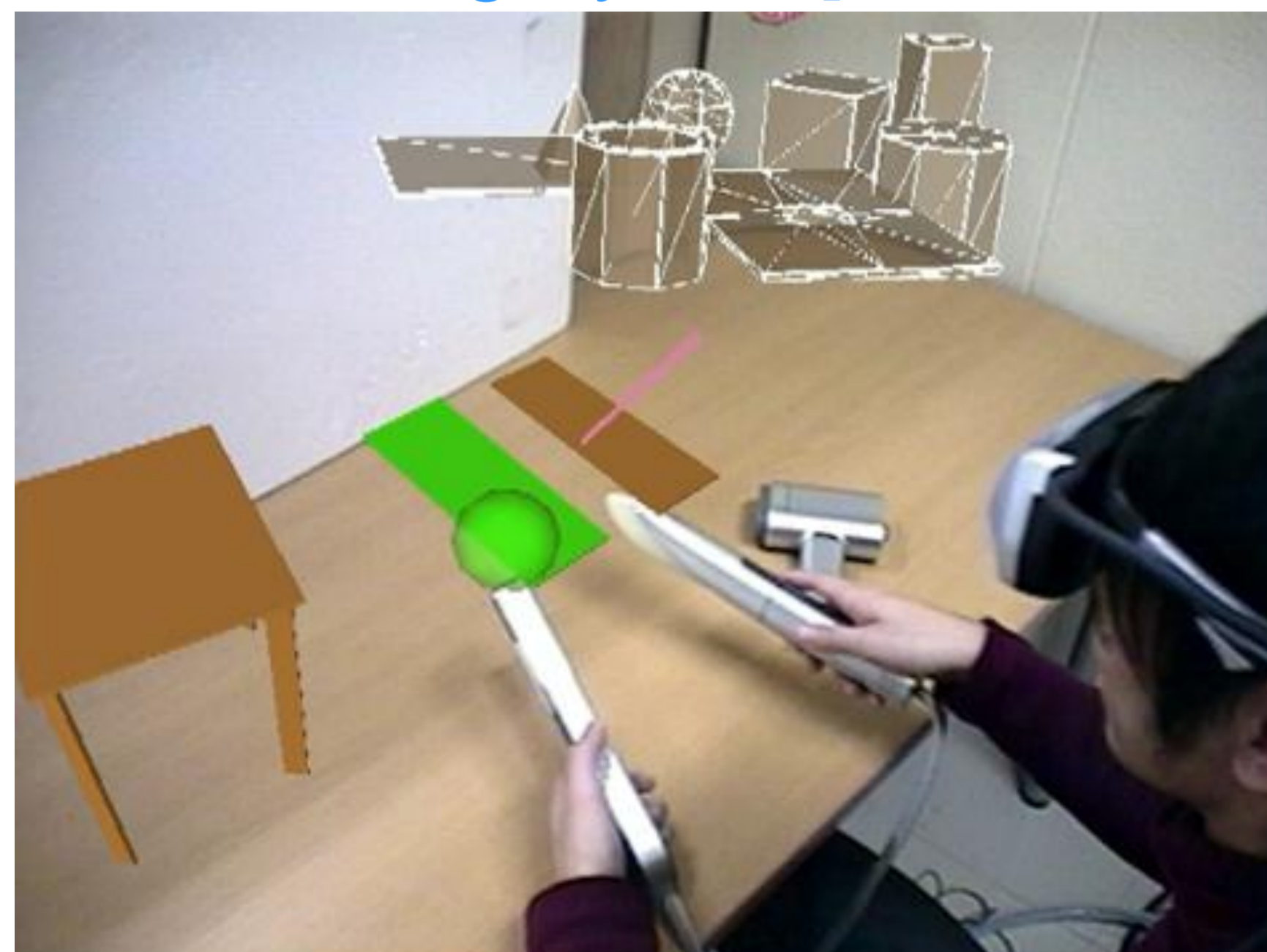
The **user interface** of most 3D modeling software is often **complex** and **not suitable for novice users**

+ Our solution [ToolDevice]



A set of **interactive devices** that uses **hand tool metaphors**

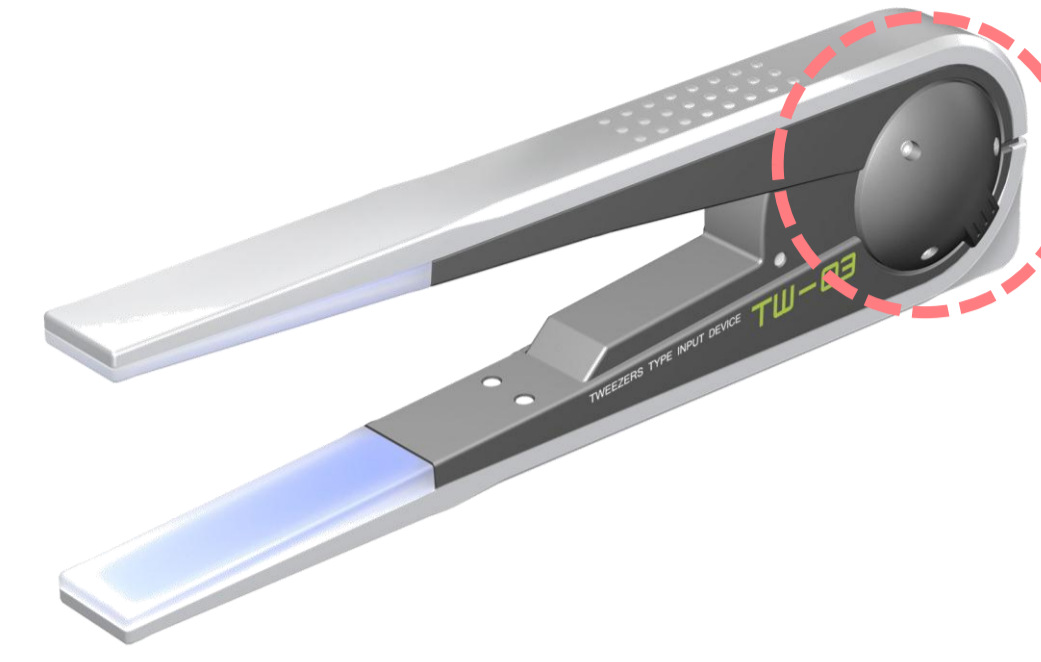
[Virtual Handcrafting System]



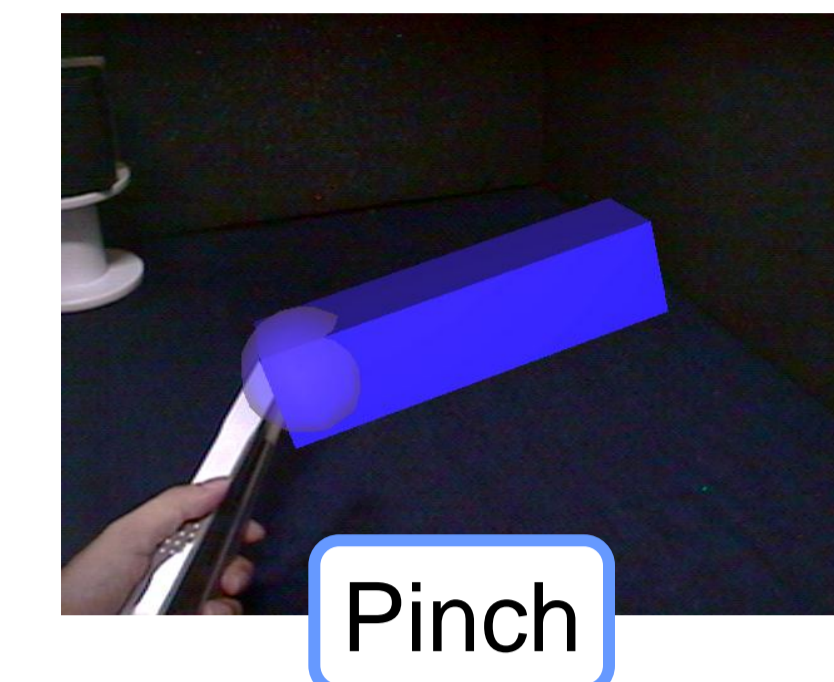
A **mixed reality (MR) 3D modeling system** that imitates **real-life woodworking**

Virtual Handcrafting

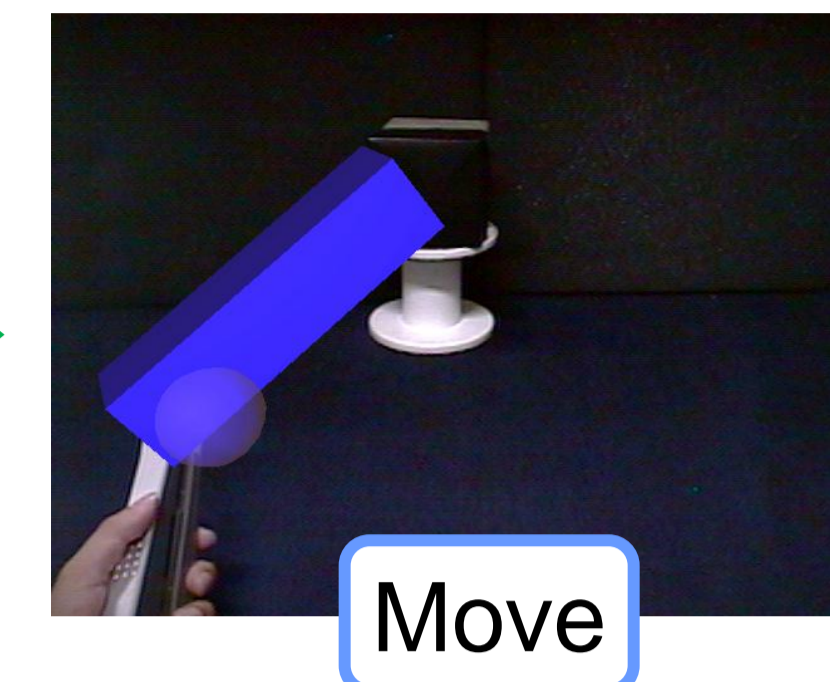
+ Pick up & Move



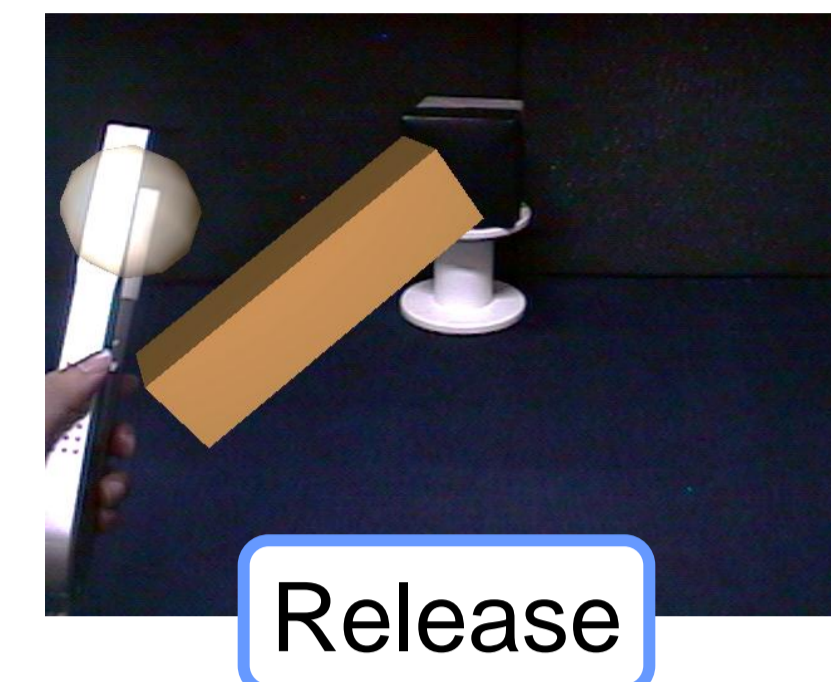
Solenoid: to provide force feedback



Pinch

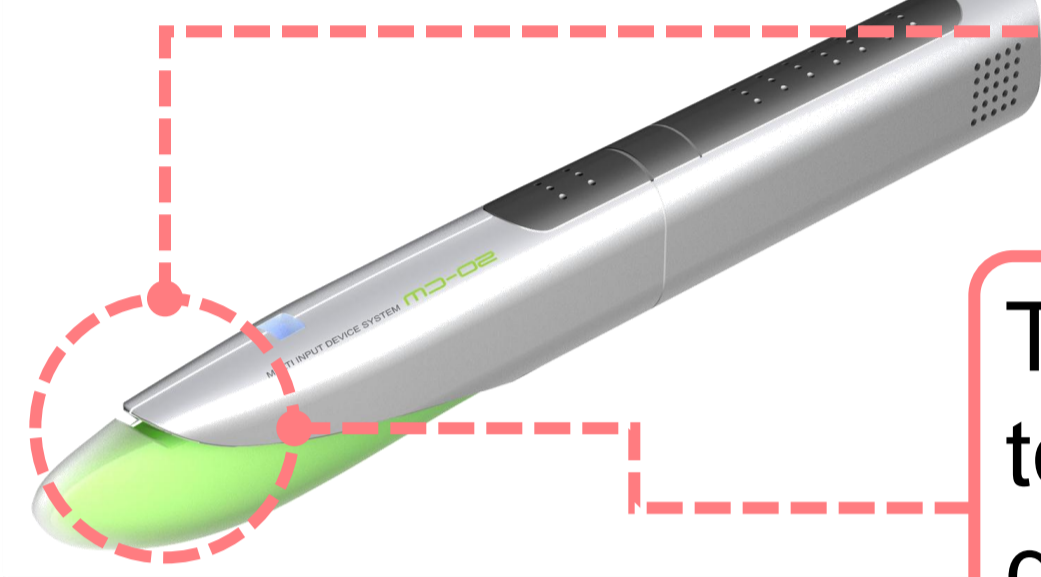


Move



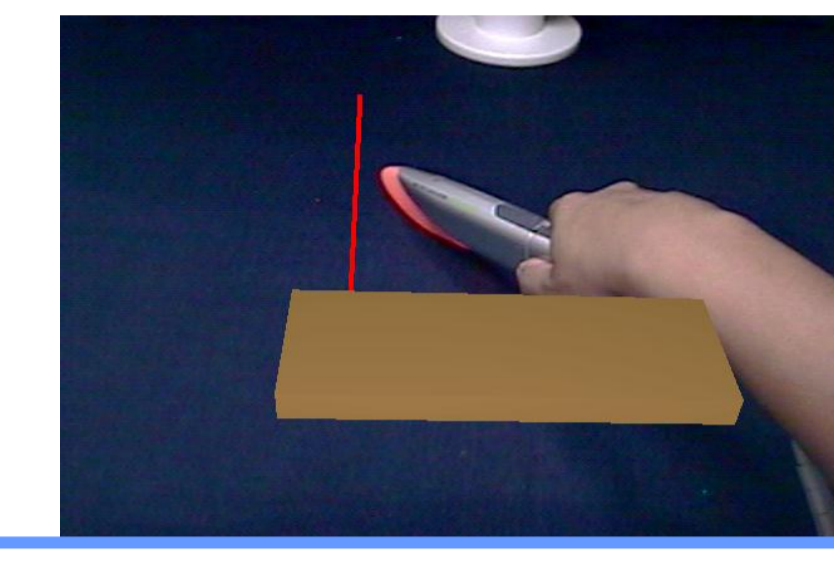
Release

+ Cut

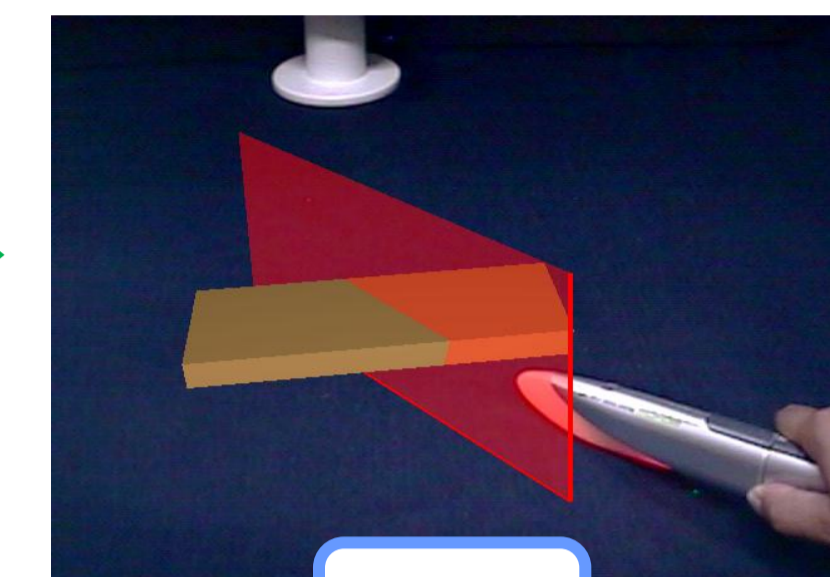


LED: to indicate when users can cut virtual objects

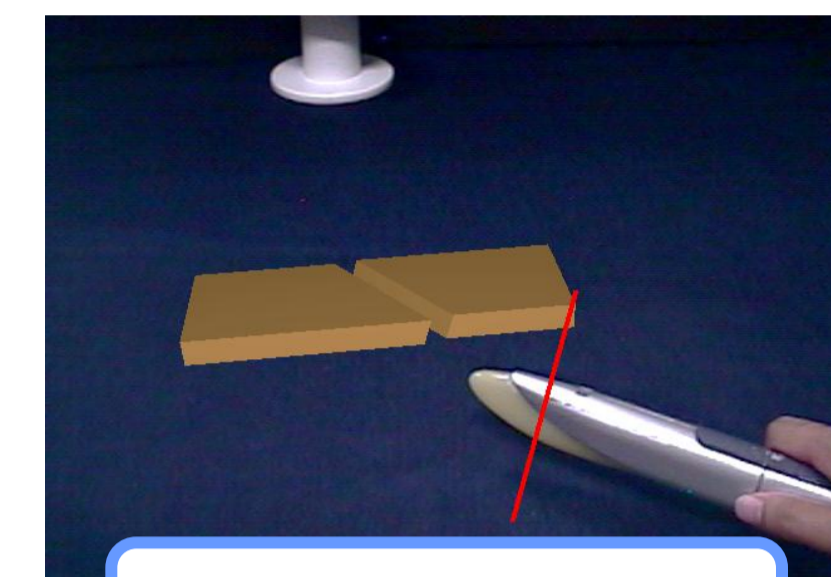
Tactile switch: to detect whether the device is pressed to the table or not



Press against the table

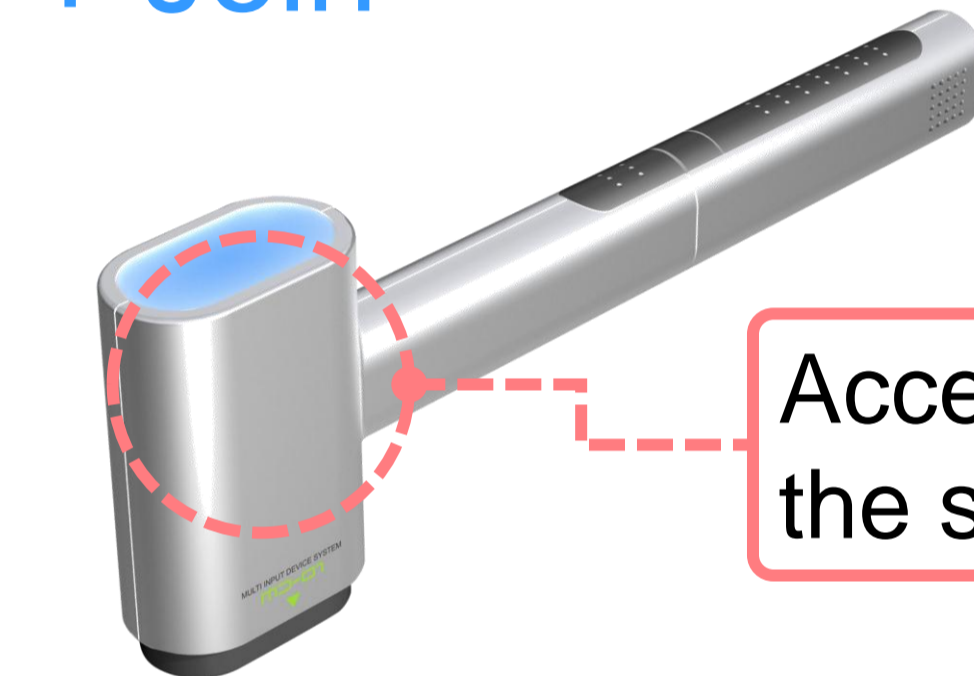


Slide

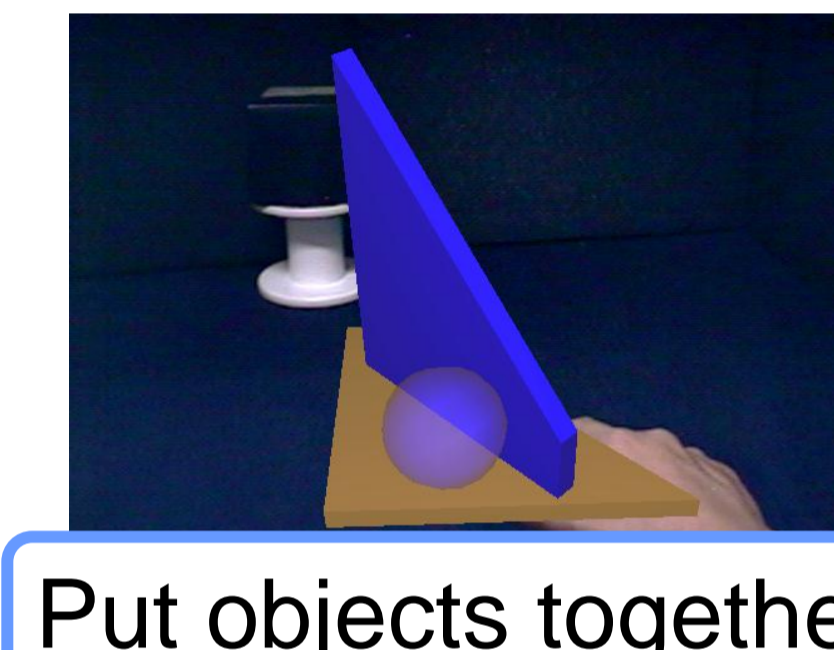


Release to cut

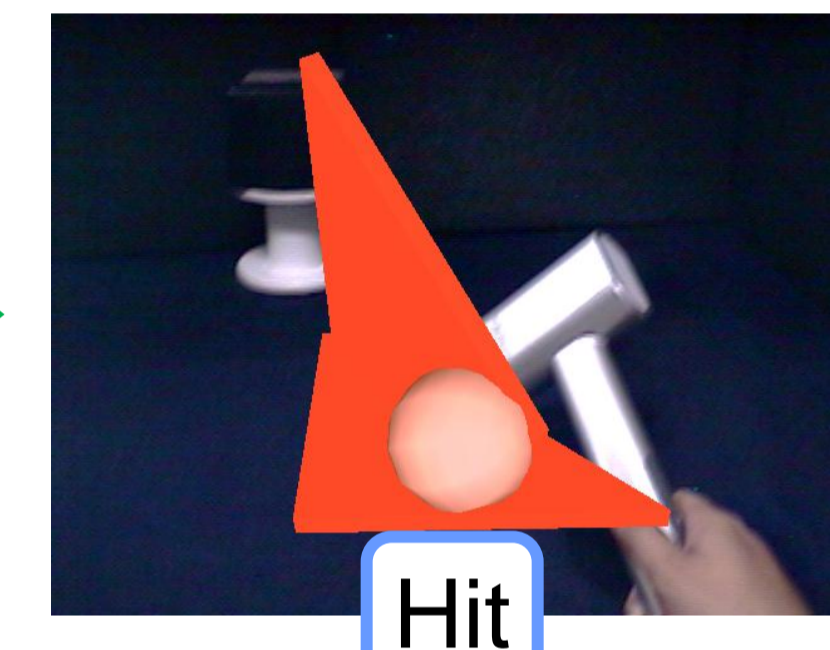
+ Join



Accelerometer: to detect the swinging speed



Put objects together



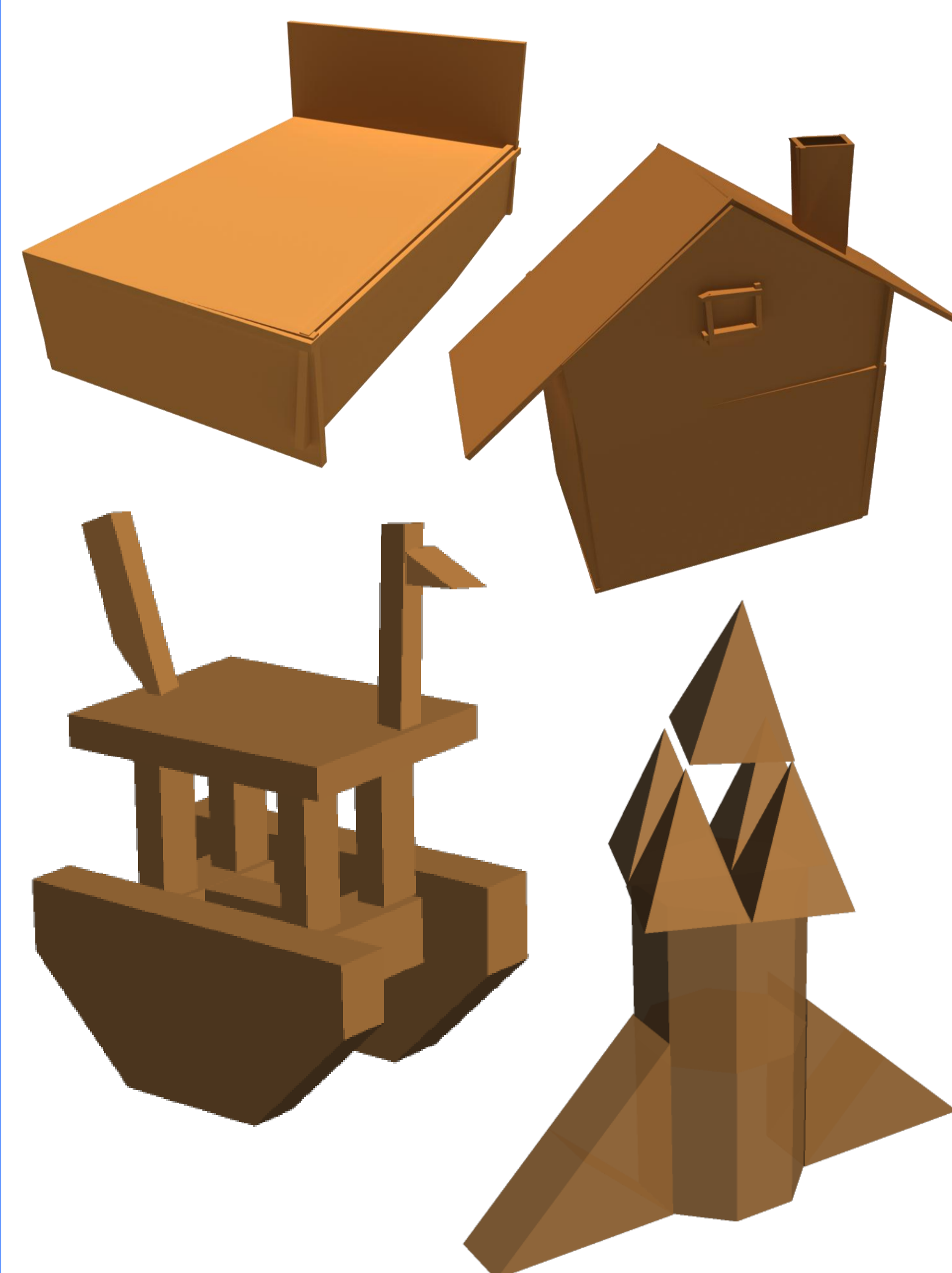
Hit



Done!

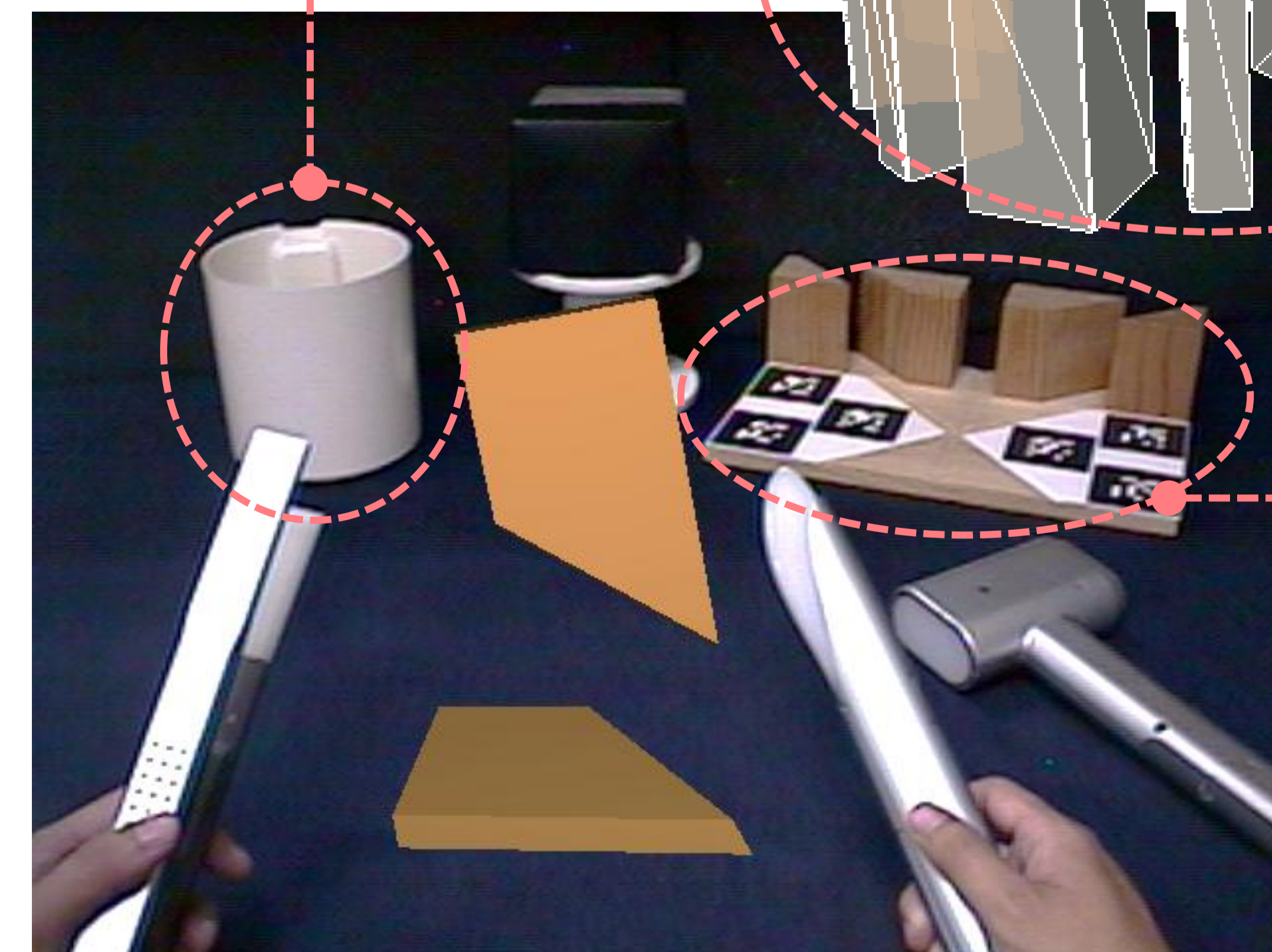
Demonstration: Building virtual wood objects

Try building these!

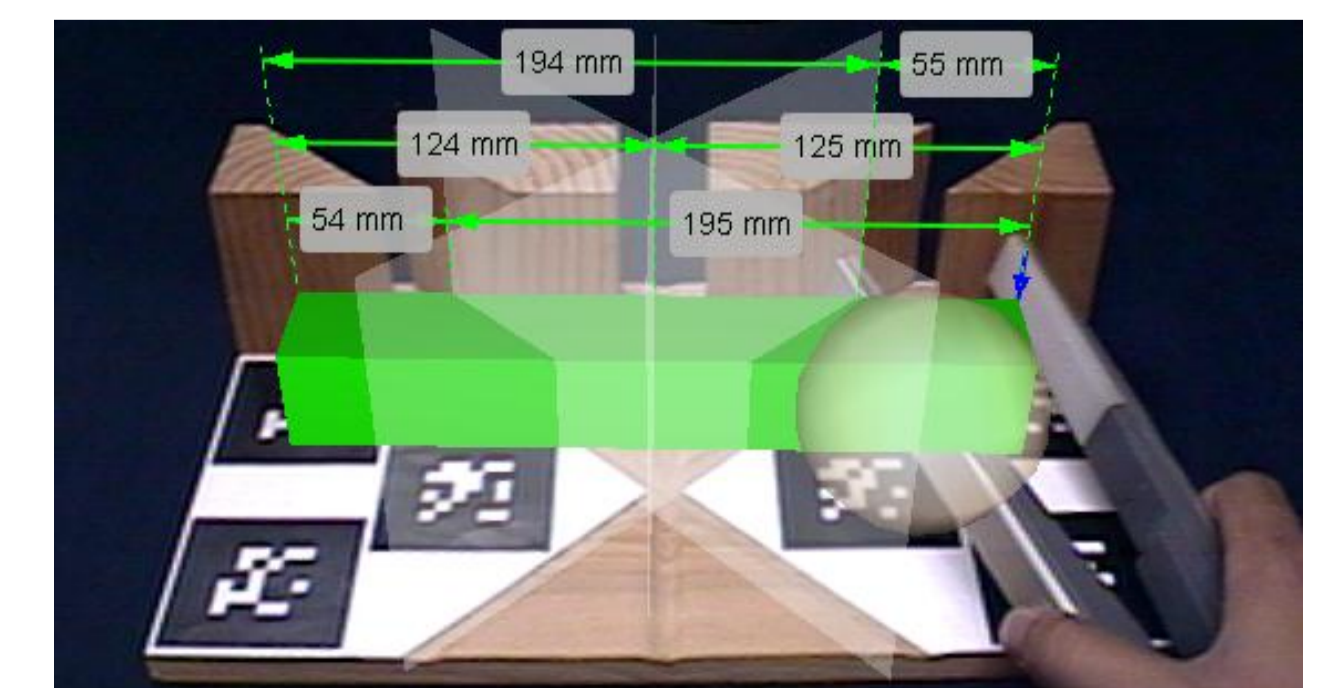


Put unneeded objects into the trash bin to discard them!

Pick one of the primitives to start building!



Place the object on the jig to view its measurement!



Cut through the slits to make 45° and 90° degrees cut!