

Paper	Moving / Translation	Scaling	Rotating	Key Takeaways
3DTouch + HOMER-S	1 Finger Drag	Pinch	2 Finger / Phone Rotation	<ul style="list-style-type: none"> - Multi-finger interaction requires prior knowledge - 3D reorientations are done using 1 touch - Ray-Casting is used to detect and move object https://www.youtube.com/watch?v=y4unZz9_Ljo&ab_channel=AnnetteMossel
Combining Multi - Touch Input	1 Finger Drag	Pinch	angle variation of the vector that joins the two fingers	<ul style="list-style-type: none"> - using keypads to rotate the object is the best strategy - Multi-touch screens were not tested
[Poster] Touch Gestures	2 Thumbs	2 Thumbs Pinch	2 Thumbs going up/down	<ul style="list-style-type: none"> - There was no camera position manipulation - Gestures were divided into 1 and 2 thumb movements
Touch + Hand Gesture Interactions	1 Finger Drag	N/A	2 Fingers / Hand motion via Leap Motion	<ul style="list-style-type: none"> - Natural and direct interaction is more applicable in many mobile device-based AR Applications - Leap Motion sensor can be attached to back / front to track hand movement - Hand gestures can be used to allow full 6DOF transformations
Virtual Object Manipulation	Moving Phone	N/A	ArcBall - Relative motion of the Phone	- Noloa 6630 was used
Virtual Object Manipulation	Keypad/Joypad buttons	N/A	Keypad/Joypad Left/Right	- Touchscreen phones were not invented at the time the paper was published
Virtual Object Manipulation	Both Moving Phone + Touch	N/A	Moving Phone OR Combo w/ Touch	- There are 2 different categories of techniques - Two handed vs One handed (depending on how the device is used / held)
VR				
DualCAD	Moving Phone	N/A	1 Finger Drag	<ul style="list-style-type: none"> - Phone enabling multitouch and stylus input were used - Phone's position and orientation are tracked in 3D (direct/indirect input device)
ARWand	Moving Phone	N/A	2D motion vector of fingertips on phone	<ul style="list-style-type: none"> - Sensors were used to detect phone movement ie. tilt, accelerometer, gyro GPS etc. - phone-based 3D manipulation allows for indoor and outdoor use
Spherical Proxu [VR]	Grabbing object	Rotating Controller in Y-axis	Rotating Controller in X-axis	2 Main Requirements: <ul style="list-style-type: none"> - Interaction with sphere should be possible w/o buttons - Technique should take advantage of spherical shape