Virtual Roommates is a mapping of loosely linked spaces, that allows users to overlay multiple physical and virtual scenes and populate them with physical and/or virtual characters. As the name implies, the Virtual Roommates concept provides continuous ambient presence for multiple disparate groups, similar to people sharing living conditions, but without the boundaries of real space.

The figures below illustrate several cases of linking real and virtual roommates in physical and mixed reality settings. The Virtual Roommate concept stands to conventional teleconferencing in the same way mobile phones stand to ground line phones: it provides continuous localized audio and video connectivity, without nailing users to predefined spots.  

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Figure 1: A real apartment in a residential building (full reality), a doll-house (make-belief reality) and a Stone Age cabin (virtuality) can be linked, populated and shared by virtual roommates. Locations B and C are linked together in our test application, shown in Figure 3.

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Figure 2: Two real people, Alice (Kings College Dorms, Cambridge, UK) and Bob (Manhattan, New York City, USA) share their morning activities as virtual roommates. Bob leaves his bathroom and heads for the kitchen (left diagram, solid curve). His path is projected into Alice’s place, where she can see him. They “meet” for breakfast, each in own kitchen.

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Figure 3: Linking real and virtual spaces. The paper doll is tracked inside a doll house, using furniture items as landmarks. Locations and orientations of the doll are then reconstructed inside the virtual Stone Age cabin, with similar furniture elements. For external views, see Figure 1.