

PLAGIARISM SCAN REPORT

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It's a freaking smart wall! Yes, you heard it right. In the coming future you might feel nostalgic thinking about the plastic switches on the walls that you used to operate different appliances of your house. Researchers at Carnegie Mellon University and Disney Research have developed a way to make your walls smart, at a cost of \$20 per meter-using simple tools and techniques such as a paint-roller. With a few coatings of conductive paint and some electronics, researchers have transformed plain and simple walls into smart walls that can sense human touch; detect gestures and appliances in use. Chris Harrison who is an assistant professor in Carnegie Mellon University's Human-Computer Interaction Institute (HCII), says that although walls are usually the largest surface area in a room, they are not used much, other than to separate spaces, and perhaps hold up pictures and shelves or some appliances. He further states that as the internet of things and ubiquitous computing become reality, it is intriguing to think that walls can become active parts of our living and work environments. Dubbed as Wall++, the researchers use the following procedure: using painter's tape, they found they created a cross-hatched pattern on a wall to create a grid of diamonds, which testing showed was the most effective electrode pattern followed by an application of two coats of conductive paint with a roller. Then the tape is removed and electrodes are connected. Then the wall is finished with a top coat of standard latex paint in order to improve durability and hide the electrodes. The electrode wall can be operated in two modes—capacitive sensing and electromagnetic (EM) sensing. In capacitive sensing, the wall functions like any other capacitive touchpad: when a person touches the wall, it makes electrostatic field of the wall to be distorted at that point. In EM sensing mode, the electrodes can distinguish between the distinctive electromagnetic signatures of electrical or electronic devices, in order to enable the system to identify the devices and their exact locations. The system has lots of potential as it can monitor activity in rooms, adjust temperature in the rooms or give an alert when an appliance is turned off. The Wall++ is also able to track people wearing some electronic devices by detecting their electromagnetic signature. Although it seems quite intimidating, there is long way to go. Wall++ hasn't been optimized for energy consumption yet, says Yang Zhang, a PhD student at HCII, but he estimates the electrodes to consume as much power as a standard touch screen. Also, there will likely need to have an alternative to installing sensor boards on each wall, but the general functionality seems to be sound and the technology could be proved a game changer in almost every sector. All in all, the coming future seems to be very bright for Wall++. And who knows, in the near future walls can literally have ears and a voice, and you might ask it the million dollar question: Who is Alexa? -Satyam Shivankur MCA 1st Year

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