Locking down your smart home with blockchain

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The concept of the smart home has been around for many decades, but it is only in recent years with the advent of the so-called "internet of things," IoT, that meters and monitoring, cameras, locking systems,

heating systems, and entertainment and information devices, have led to many homes having some degree of genuine smartness. Of course, with connectivity and utility come security problems. For instance, a malicious third party might find access to the home's wireless network, reprogram the smart TV, turn up the heating, disable the air conditioning, or even open the front door and allow them to remove all your smart devices and redeploy them elsewhere.

Now, Utkarsh Saxena, J.S. Sodhi, and Rajneesh Tanwar of Amity University, in Noida, India, have discussed the options surrounding smart home security in the *International Journal of Electronic Security and Digital Forensics*. Their survey suggests that security and privacy of the smart home network might best be augmented using the blockchain concept, borrowed from the realm of cryptocurrencies.

A blockchain is a list of records held in digital form, these records or blocks, are linked sequentially and encrypted so that each block is linked to the cryptographic hash of the previous block in the chain. The blockchain carries a timestamp and transaction data for each block and because of the way they are connected the blockchain as a whole cannot be altered in any way without destroying it completely, hence its validity in cryptocurrency and now potentially for other kinds of security, specifically that of the smart home network. The team suggests that adding IoT devices, which are often utilizing distributed resources and services, using a blockchain means that malicious third parties cannot access or interfere with any part of the system without disrupting the system as a whole and thence triggering a security lockdown.

More information: Utkarsh Saxena et al. Augmenting smart home network security using blockchain technology, *International Journal of Electronic Security and Digital Forensics* (2019). DOI: 10.1504/IJESDF.2020.103881

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