

## ABSTRACT

Harmonic radar systems have been shown to be an effective method for detecting the presence of electronic devices, even if the devices are powered off. Prior work has focused on detecting specific nonlinear electrical components (such as transistors and diodes) that are present in any electronic device. In this paper we show that harmonic radar is also capable of detecting the presence of batteries. We test the system on Alkaline, NiMH, Li-ion, and Li-metal batteries. With the exception of Li-metal coin cells, we find the system can detect the presence of batteries with 100% accuracy.

ACM Reference Format:

Anonymous Author(s). 2024. Detecting Battery Cells with Harmonic Radar. In Proceedings of ACM Conference on Security and Privacy in Wireless and Mobile Networks (WiSec). ACM, New York, NY, USA, 6 pages. <https://doi.org/10.1145/nnnnnnn.nnnnnnn>