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**PAPER TITLE:** Mobile Energy: making mobile devices self-sustaining

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**ABSTRACT:** In a world facing the severe consequences of anthropogenic climate change, the growing market in handheld devices raises concerns regarding their energy consumption. Much research is underway to find ways to improve the energy efficiency of such devices. This study constitutes a proof-of-concept investigation into the feasibility of using photovoltaics to recapture uncoupled photons from organic light-emitting diode (OLED) display screens. A functional light-harvesting system, using Schottky solar cells, was integrated into a commercially-available, handheld device, which incorporates an OLED screen. The design of the system paid attention to maintaining the form factor of the device and adhering to widespread industrial procedures. The full lifecycle energy cost of integrating this system into commercial devices was assessed and recommendations are given for technology incorporation and future research.