US 20220360140A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2022/0360140 A1**

ZHU et al. (43) **Pub. Date: Nov. 10, 2022**

(54) **CONTROL OF PASSIVE ELECTRIC SYSTEMS POWERED BY ENERGY HARVESTING**

(71) Applicant: **Infineon Technologies AG**, Neubiberg (DE)

(72) Inventors: **Qi ZHU**, Munchen (DE); **Doris KEITEL-SCHULZ**, Hoehenkirchen (DE); **Natasha NOVIK**, Freising (DE); **Helmut SOCHOR**, Muenchen (DE)

(21) Appl. No.: **17/728,134**

(22) Filed: **Apr. 25, 2022**

(30) **Foreign Application Priority Data**

May 7, 2021 (EP) 21172757

Publication Classification

(51) **Int. Cl.**

H02K 7/18	(2006.01)
H02J 50/00	(2006.01)
H02M 1/00	(2006.01)

(52) **U.S. Cl.**

CPC ***H02K 7/1853*** (2013.01); ***H02J 50/001*** (2020.01); ***H02M 1/0006*** (2021.05); *H02J 7/345* (2013.01)

(57) **ABSTRACT**

A method for controlling an electric load is described herein. In accordance with one embodiment the method includes collecting ambient energy using an energy harvesting circuit and using the collected ambient energy to charge a buffer capacitor. The method further includes alternatingly connecting and disconnecting an electrical load and the buffer capacitor, wherein a capacitor voltage provided by the buffer capacitor is applied to the electrical load in a discharging phase, in which the electrical load is connected to the buffer capacitor and the capacitor voltage decreases, and wherein the buffer capacitor is recharged in a charging phase, in which the electrical load is disconnected from the buffer capacitor in a charging phase in which the capacitor voltage again increases. The durations of the charging phase and the discharging phase are designed such that the capacitor voltage stays above a minimum supply voltage of the electrical load.