



US 20220368195A1

(19) **United States**(12) **Patent Application Publication**
Millius et al.(10) **Pub. No.: US 2022/0368195 A1**(43) **Pub. Date: Nov. 17, 2022**(54) **SELF-POWERED IRRIGATION SYSTEMS,
GENERATOR SYSTEMS AND METHODS OF
CONTROLLING IRRIGATION****Publication Classification**(51) **Int. Cl.***H02K 7/18* (2006.01)*G05D 16/06* (2006.01)*A01G 25/16* (2006.01)*H02K 11/00* (2006.01)*H02K 11/04* (2006.01)(52) **U.S. Cl.**CPC *H02K 7/1823* (2013.01); *G05D 16/0636*(2013.01); *A01G 25/16* (2013.01); *H02K**11/0094* (2013.01); *H02K 11/04* (2013.01)(71) Applicant: **Rain Bird Corporation**, Azusa, CA
(US)(72) Inventors: **Michael J. Millius**, Tucson, AZ (US);
Riccardo J. Tresso, Oro Valley, AZ
(US); **Randy R. Montgomery**, Tucson,
AZ (US); **Patrick J. Hibbs**, Gilbert, AZ
(US); **Parthiv A. Rajgor**, Marana, AZ
(US); **Michael A. McAfee**, Tucson, AZ
(US); **Jiangjiang Dai**, Tucson, AZ
(US); **John E. Price**, Tucson, AZ (US);
Bradley H. Dolbin, Tucson, AZ (US)(21) Appl. No.: **17/744,349**(22) Filed: **May 13, 2022****Related U.S. Application Data**(60) Provisional application No. 63/189,003, filed on May
14, 2021, provisional application No. 63/218,771,
filed on Jul. 6, 2021.(57) **ABSTRACT**

Some embodiments provide irrigation generator systems that include a main conduit comprising an inlet conduit and an outlet conduit; a flow control system positioned within the main conduit; a generator conduit comprising a generator inlet conduit and a generator outlet conduit, wherein the generator inlet conduit is fluidly coupled with the main conduit upstream of the flow control system, the generator outlet conduit is fluidly coupled with the main conduit downstream of the flow control system; and a generator comprising a rotor assembly cooperated with generator conduit to be physically activated by a flow of fluid through the generator conduit causing rotation of the rotor assembly and generates electrical power. The flow control system transitions between a closed state to the open state in response to a water pressure exceeding a pressure threshold.

