PiMEMS has been reshaping the world with their titanium based Micro-Electro-Mechanical-System (MEMS) devices. Prior to PiMEMS, MEMS devices were primarily fabricated from silicon. As a material, silicon is brittle and can fail in harsh environments where the device is exposed to high temperatures or radiation, creating potentially damaging splinters and shards. PiMEMS is commercializing a platform technology that allows it to design, fabricate and package MEMS devices from bulk titanium substrates which are uniquely suited for harsh environments and for biomedical applications. Their flagship product is a high performance, ultra-thin, low cost thermal ground plane that is customizable to any 2D or 3D complex shape.

Using titanium has many advantages. It is corrosion-resistant with higher fracture toughness than silicon making it durable. It is scalable meaning it does not contaminate processing equipment during micro-machining. Titanium also has a high strength-to-weight ratio and is a low cost material. These advantages have made PiMEMS a leader in the MEMS manufacturing business. They have influenced many industries. Their titanium based Thermal Ground Plane (TiTGP) technology offers the thinnest and the lightest high performance planar thermal solution for microelectronic applications.

For the healthcare industry PiMEMS developed titanium based compatible micro needle platform to analyze blood chemistry and to detect certain molecules. Other industries include space, energy fields.

PiMEMS was founded in 2012 by UCSB grad student Payam Bozorgi and UCSB professors Noel McDonald and Carl Meinhart. Payam was a grad student in Prof. McDonald’s lab and developed the technology while pursuing his PhD in Mechanical Engineering. Today, they have grown to a team of 6 comprised of world leaders in MEMS, micro-fluidics, and engineering.
As of 2016, PiMEMS holds 10 patents on micro and nano fabrication of bulk titanium alloy and other metals to construct and package metal based micro devices. In addition to their many successes, they have also mastered the art of coffee and enjoy perfectly roasted beans daily.