Researchers at the University of South Florida have developed the Metal Oxide Varistor (MOV) which is the key element in surge protection devices, serving to divert excess current away from the output network during surges.

Current technologies use thermal fuses to indicate component failure, but there is no separate indication of MOV failure.

After multiple surge suppressions, the fuse may not reach its thermal limit, but the MOV could degrade and fail. In the surge protectors presently marketed, if the thermal fuse is working, the protection LED’s falsely indicate that the device is working, even if MOV is taken out of the circuit or is malfunctioning.

Our novel invention proposes design for detection of MOV failure, even if the other components of the device are working properly. The core idea is to take advantage of MOV capacitance. This fact is evolved into a design which ensures the proper detection of MOV when it is not performing as a diversion of surge current.

**ADVANTAGES:**
- MOV failure identification independent of thermal fuses
- Simple modifications in the existing devices’ circuitry
- Enhanced protection of sensitive devices

**Currently available product in market:**
Protection LED is Still ON with MOVs Removed.

**Our Invention:** Red LED On Indicates MOV Failure.