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## BATTERY SWELLING DEFENDER BY POGO PINS DETECTION TO DISCHARGE THE SWELLING GAS

HP INC

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## Battery Swelling Defender by Pogo Pins Detection to Discharge the Swelling Gas

This innovation method is integrated electrical circuitry with pogo pins placement to sense battery swelling area and then mitigate it by an automatic control flow. For control methodology, the battery defender design in system background and monitor the battery swelling status. Once pogo pins trigger a battery swelling alert then start to calculate the affected area to further turn on the mesh shutter until mitigating the battery swelling circumstance.

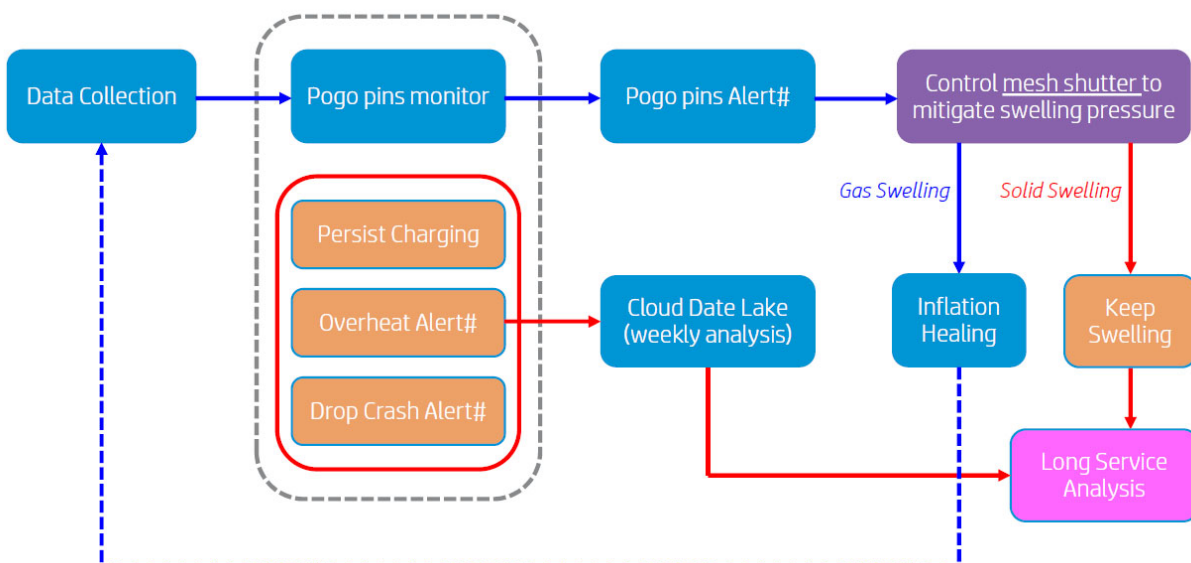
One step further, this solution can detect battery swelling earlier and analyze long term user charging usage in the data lake then properly adjust charging behavior on tagged system for preventing battery swelling before the chassis abnormal bending happen.

### New Approach:

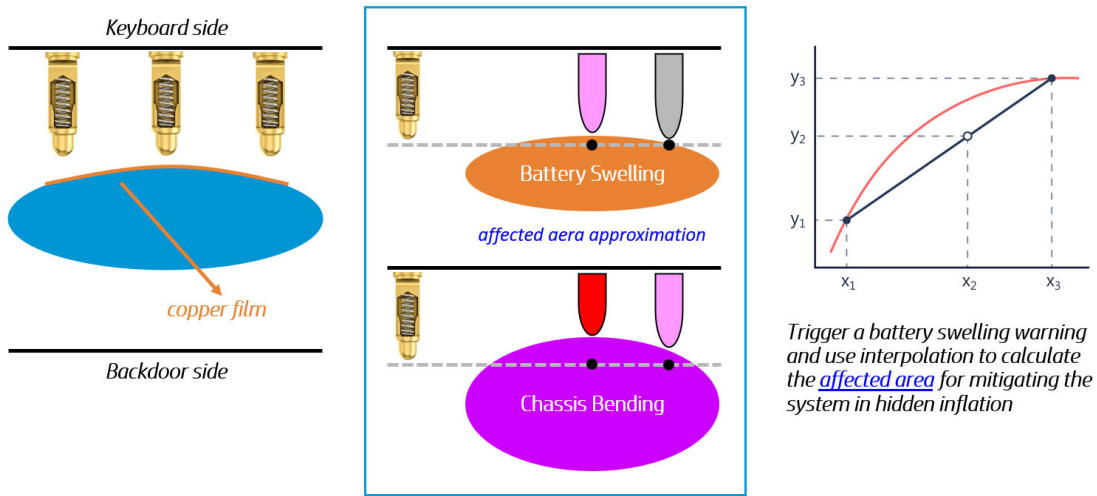
The purpose is to provide a battery swelling defender to use PP/PET fabric over battery package surface and then design a mesh shutter to be controlled correspondingly with the pressure ratio of cell swelling. So that system can control the inner gas vent out smoothly and reject any outer gas in. The entire system solution can be designed in system background with automatic control flow to mitigate battery swelling circumstance.

- Extend battery package guarantee and mitigate the cell swelling effect.
- Able to support faster charging and supply higher battery capacity.
- Able to support the portable system work in severe weather conditions.
- Provide an automatic control to analyze and mitigate battery swelling.

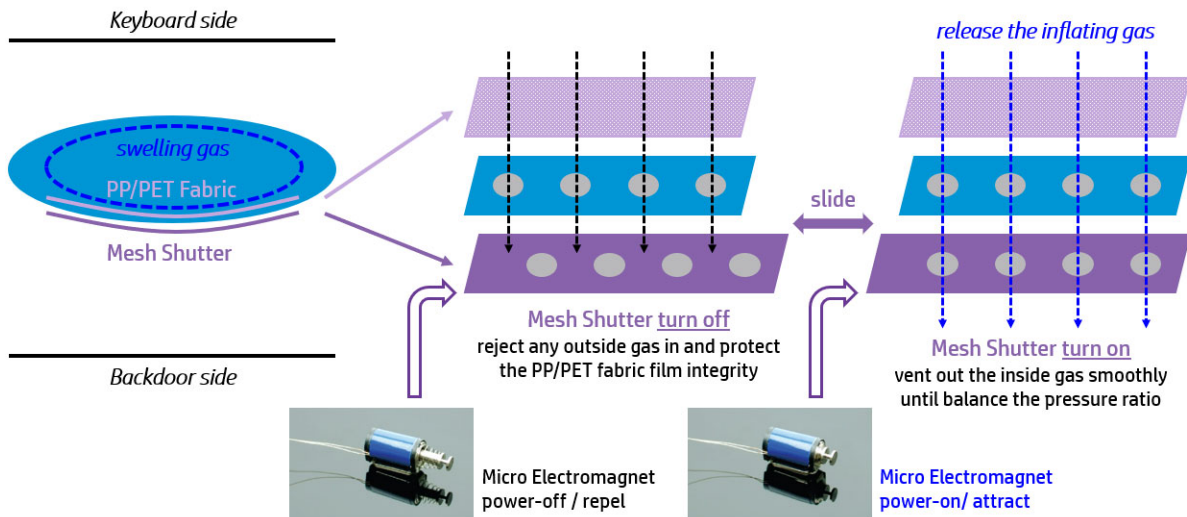
### Swelling defneder Control Flow

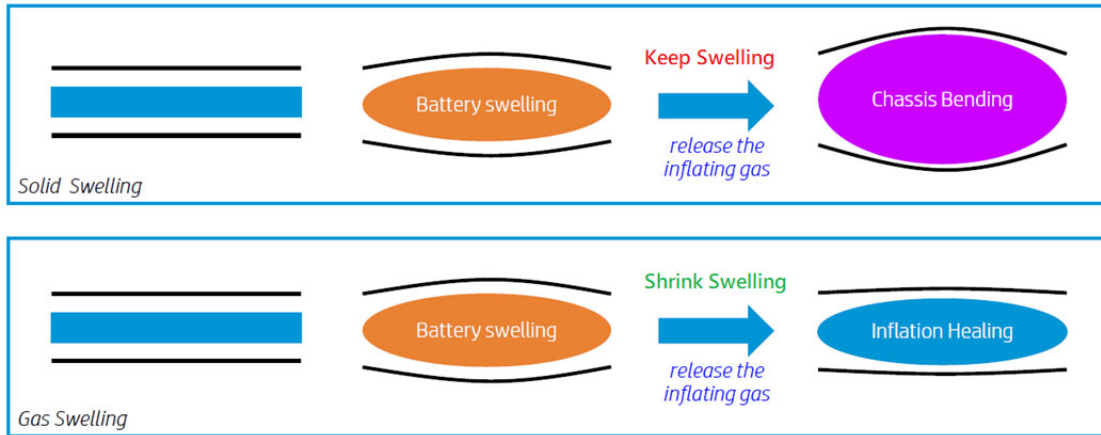


### Pogo Pins and Mesh Shutter Design



Trigger a battery swelling warning and use interpolation to calculate the affected area for mitigating the system in hidden inflation





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