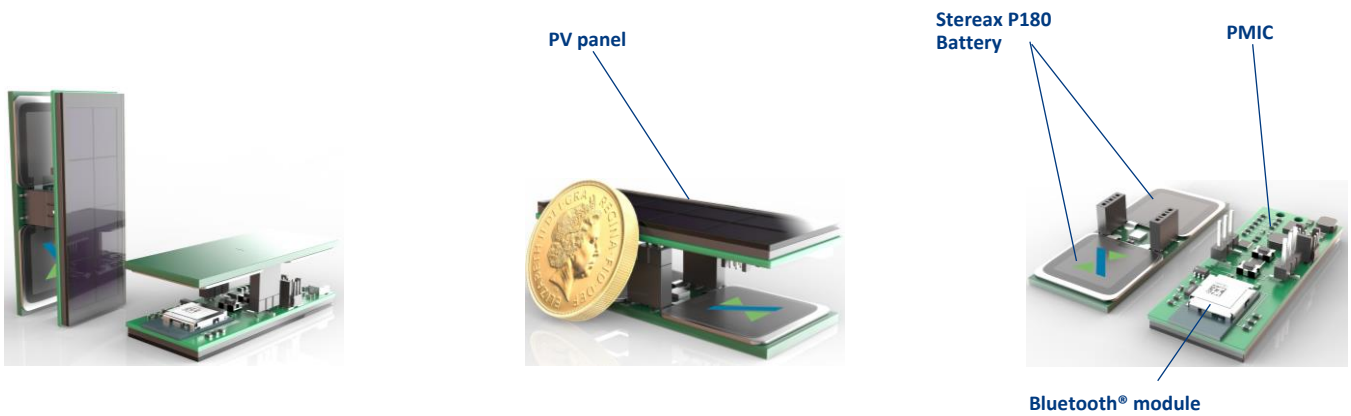


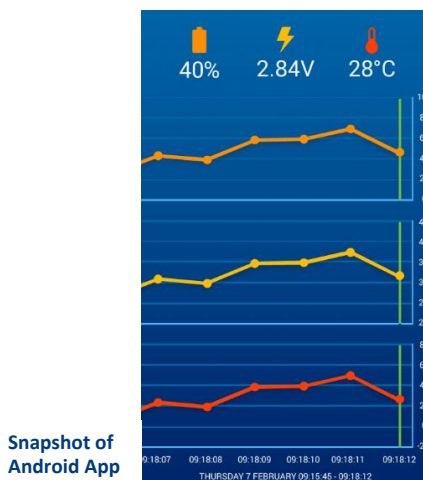
Perpetual Beacon for Industry 4.0 powered by Stereax™ P180

To illustrate the ability of the P180 solid state battery to power real devices, Ilika has designed and constructed a demonstrator for high temperature applications. This device is a perpetual beacon for industrial or automotive applications, in other words, an autonomous sensing device of minimal size which is powered by a combination of harvested solar energy (by using a PV panel of high efficiency indoors) with the P180 solid state battery. The PV panel provides energy when solar energy is available (for example during the day) and keeps functioning when the solar energy becomes unavailable, by discharging the battery. The device may be placed in contact with hot surfaces, up to 105°C, to replicate hot machinery or hot parts of engines. A sensor measures temperature data which are transmitted through Bluetooth® to a tablet where temperature and battery characteristics (Voltage, State of Charge) are displayed.



Component	Company	Model / Comment
Battery	Ilika	2 x 180 µAh Stereax P180 solid state batteries
PV panel	Sharp	20 mm x 50 mm
Battery Management	Texas Instruments	BQ25570
Bluetooth® LE	Rigado	R41Z, incl. NXP KW41Z SoC with ARM Cortex M0+ CPU
Temperature	Texas Instruments	HDC 1080

Transmission regime: 3 peaks at 5 mA for 0.5ms every second



Snapshot of Android App



Example of perpetual beacon use case

accelerated materials innovation

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