



Technology with Vision

Makethon 2018- An Open Innovation Initiative with COEP

Problem Statements



Design and Develop a Sodium Ion Cell



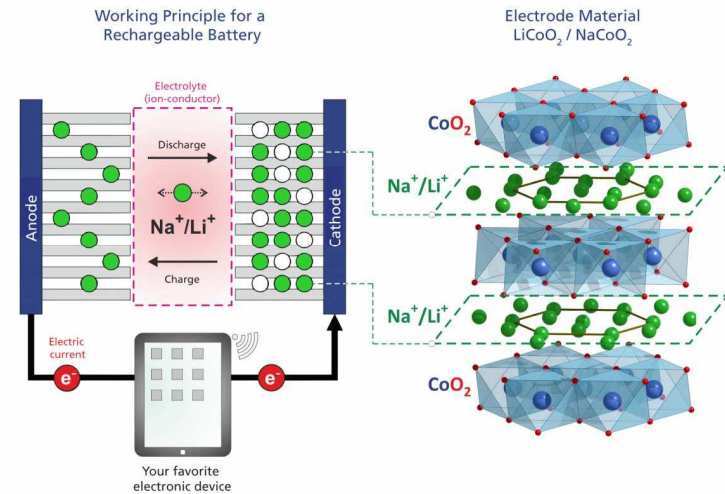
Problem:

Lithium Ion cell compromises safety and cost.

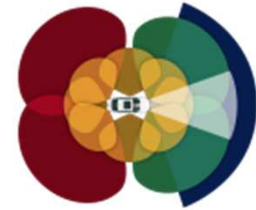
Availability of Lithium is a question leading to grave need of alternative technology which is safe and cost effective.

Required Solution:

Develop a electrochemical prototype of a Sodium Cell. Show voltage and current generation from it.



Smart Helmet Features



Problem:

During rainy season/winter the helmet face shield gets filled up with water droplets or moisture leading to unclear vision for driving.

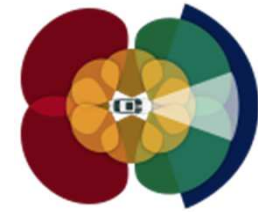
Riding two-wheeler with helmet in hot day is tiresome and uncomfortable.

Required Solution:

Solution should comprises of a prototype, which assists the vision of driver by removing droplets and also comforts driver with appropriate air circulation mechanism



Developing technology to sense objects in the foggy condition



Problem:

Foggy conditions are very natural in winter season leading to blindness to the driver.

Required Solution:

Solution should comprise of HW prototype which would be able to detect objects in the Fog condition and assist driver to take precautionary actions



Over the Air Code Flash



Problem:

For a all ECUs (Electronic circuit Unit) at the factory site code flashing is done by CAN protocol.

But for those ECUs which do not have CAN but a wireless medium of Bluetooth flashing is difficult.



Bluetooth Basic SW and Bootloader

Required Solution:

Create a HW prototype (Development Kit) with Bluetooth Interface and Mobile Apk.



Mobile Apk will have facility to collect Hex file and send to controller on Bluetooth communication.



Create a bootloader which will use this hex file to boot the system



Software based and Active Power Factor Correction



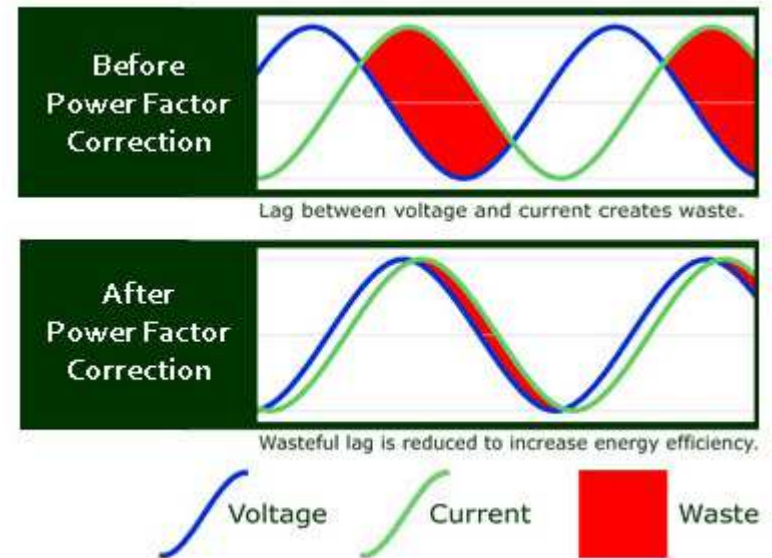
Problem:

Power factor correction is an integral part for all AC input system. Existing System uses dedicated ASICs to implement this correction increasing the cost.

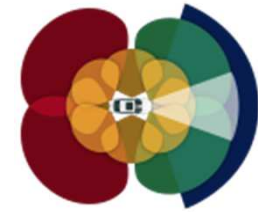
Required Solution:

Solution should be a working hardware prototype capable of taking AC input correcting the Power factor.

Hardware prototype should also have variable load to manipulate the PF



Determination of Natural Frequency of Diaphragm of a Horn



Problem:

Horn Oscillates at the Natural Frequency of diaphragm producing sound

Validation of horn at factory is done after diaphragm is fitted into it leading to rework if diaphragm Natural Frequency is different.

Required Solution:

Develop a Hardware prototype which can estimate the natural frequency of the diaphragm.

