Enabling Unique Package Sensor Services For The Internet of Things
Who is UBOTIC?

Emerging Markets Require Unique Packaging Solutions

Gas Sensor Packaging Challenges

MEMS Microphone Packaging Challenge

Flow Sensors Packaging Challenges – Avoiding Turbulence for Industrial, Medical and Automotive applications
OUR FOCUS?

- A Unique Systems Solution Provider
  Enabling companies to rapidly bring new MEMS & Sensor products to market through creative engineering, enhanced package development and materials for scalable manufacturing processes.

- Offering open tooled Air Cavity QFN & LGA Packages to cavity SOIC
  Along with SIP Solutions, Custom Housing & Lids through both transfer or injection molding techniques.
Who Are We?

- UBOTIC Company Limited was Founded in 2009
- Subsidiary of UBoT – A Leading JEDEC Tray, Plastic Reel Manufacturer
- Founded in 2005
- 450 employees worldwide
- Hong Kong & Dongguan, China
- Meeting Quality System Demands....
Our Difference: Being Unique in an Emerging Market

Collaboration Examples: MEMS & Sensors Package Integration Solutions

Pressure Sensors
Automotive, Industrial

MEMS Microphone – Consumer/Automotive

Flow Sensors

Gas Sensors – Everywhere from Industrial to Consumer Chemical Detection

UBOTIC
MEMS & Sensor Integrator
Gas Sensors Packaging Challenges – “Sensing the difference”

Challenge #1
Digital Interface Detector Required Near Hermetic with RF Shielding in Plastic:

Solution: eRAQFN – Enhanced Ring Cavity QFN

Mold LF Structure:
Package Structure of ErQFN Package Frame-On-Frame

- Metal cap
- Solder
- Solder ball
- Die
- Au wire bond
- Cu leadframe
- Cu ring
- EMC

PATENTED
Gas Sensors Packaging Challenges – “Sensing the difference”

- Consumer-grade air-tightness, Near/Semi-Hermetic, pass gross-leak test, plastic lead-frame base cavity package, cost-competitive versus ceramic packages.

- Conductive path from metal lid to ground connection benefit to RF application.

- Pass full reliability test including multiple IR reflow.

- Successful application in sensor market, PYREOS Releases EzPryro
Failure is not an option – Reliability is Key for Gas Detection:

- **Challenge #2:**
  
  Provide Packaging Integration for World’s Smallest, High performance Electro-chemical Gas Sensors

- **Sensors Include:** CO, NO2, O3, H2S, SO2, ETOH, Resp, IAQ,

- **For Applications in:**
  - Air Quality Monitoring
  - Breath Analysis
  - Smart Homes & City
  - Wearables
The ULPSM-CO V2 is a small form factor, ultra-low power CO sensor that produces a linear voltage output proportional to CO concentration from 0 to 500 ppm.
Industries First Patented LCP Top Port MEMS Microphone Package Was Created

Challenge #3

- Meet market LGA specs, 3.76x4.72x1.25mm
- Improved back volume for flat frequency response
- Good electrical ground

PCT Patent No. WO 2011/103720

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MEMS & Sensor Integrator
Challenge #4:

- Provide Packaging Integration for flow Sensors- No Turbulence to ensure Laminar Flow both air and liquid applications

Solution:

- Enhanced Molded Housing structure with support frame epoxied PCB to ensure sensor flatness and air tight seal is maintained
Medical Grade and Automotive Ready:

- Providing intricate molding, Air Tight Seal around Laminate for Liquid Flow in IV and pump systems (Kidney, Heart)

- Automotive Solutions – MAF
Summary

- A unique MEMS & Sensor systems solution provider
- Excellent material, assembly, & engineering capability
- Creative engineering for your IoT opportunity
- Offering complex open tooled Air Cavity system embodiments
- Bringing packaging and system ideas to fruition
- Leveraging our engineering talents to making it happen

*Bring Your MEMS & Sensor Ideas To Life*
Thank you!

For more information contact Sales@ubotic.com

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MEMS and Sensor Integrator