Sensorise Proprietary

Presentation to: Sensorise Customers Subject: Introduction to Sensorise Product & Services QoSim[™], SenseLCM[™] & Analytics Presentation By: Sensorise Digital Services Pvt Ltd Date: 25 June 2018







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Sensorise Snapshot



Who we Are	 A Role model M2M Service Provider Strong team with several decades of experience in Telecom, Analytics, Products and Services HQ in Noida with presence in Kochi, Mumbai, Bangalore and a PAN India reach 	ł
Our Achievements So far	 First company to introduce embedded SIM (QoSim[®]) and its Life Cycle Managemen Indian market. Filed a Patent in Indian, USA and Sweden Patent Offices More than dozen partners for QoSim[®] with over 80,000 QoSim[®] in the market Design, Development & Deployment of Customer Feedback Device with Portal, Rep Analytics and field support for Swatchh Bharat Mission in states of DelhiNCR, Harya and Kerala 	t in ports , ina
Our Differentiator	 End-to-End Service Provider; takes complete responsibility hardware, embedded Software, Portals, Analytics and Field deployment and support Regularly participate and contribute to Standards and Policies for India; ensures our products and Services always "Standards aware" 	r
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Sharad Arora, Managing Director

Rajeev Arora, Director and CTO

Jonas Haggård, CSO

Abhishek Batra, CFO

Vijaya Kamath, VP Engineering

Ajay Nandy, VP Supply Chain

Prasun Nigam, VP Sales

- Intellectuals and Professionals each with 20 years of industry experience
- Deep insights of industry & technology
 - Telecoms
 - OTA Technology and Platforms
 - Embedded Systems
 - Security
 - Analytics
 - Standards, Regulations
- Extensive Domestic and International experience



Sensorise Ecosystem Partnerships & Certification







Sensorise Recognition and Rewards





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Business Lines



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SenseLCM® [Sensorise IP]

- GSMA standardised Universal Integrated Circuit Card based solutions
- Factory Ready solderable SIM
- Secure Messaging Gateway
- Remote Management Portal
- Standards based KYC for Mfr and Buyer
- Quality of Service with multi-network Profiles



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ls this toilet / facility clean ? क्वा यह श्रीचालय/सुविधा साफ है ?	To Advertise Hare email at care@sensorise.net				
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O O O	Report Instead by SMIS SINC to The sectors report Rep Sec Sector				

SenseTise[Sensorise IP]

- Multi-Purpose and Configurable IoT Device
- Factory Ready solderable SIM
- Portal for Public and Secure Administrative access
- Security and Safety features
- Portal with easy to navigate Dashboards & Report
- Machine Learning engine

SenseMatic ®

- Z-Wave, Bluetooth, Wi-Fi based sensors
- Multi-protocol Gateway
- Secure Portal and Mobile App
- Sourcing and Supply Chain
- Service Management





- AI App for Teenage Health Monitoring
- Machine Learning for variety of Industrial & IoT Projects
- An IoT based Kiosk for destitute Children







Sensorise SenseLCM[®] and QoSim[®]

Value Proposition

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What is the GSMA e-SIM



An 'embedded' SIM has the same functionality as a removable SIM, but in a different form factor - a chip, designed to be permanently soldered into an M2M device.

These SIMs have many benefits for the M2M industry: cheaper to produce, withstands vibration, and it's small size lends itself well to the growing IoT market.

5

It has 8 electrical pins, which are exactly the same as the 8 gold contacts on a normal

0

SIM.

But there's a problem:

If you can't easily change SIM, how can you change from one mobile operator to another?

The GSMA Embedded SIM Specification solves this by allowing new operator profiles to be downloaded when required.

This makes it possible to change from one operator to another at the end of contract.

All of this carried out securely Over The Air.



The GSMA Embedded SIM Specification also applies to removable M2M SIMs too

There are millions of M2M devices already already deployed using removable SIMs - retrofitting them with GSMA Embedded SIMs allows them the same benefits going forward.



- Telco and SIM agnostic
- Solderable IC form factor SIM for machines extends the proven identity and security to machines
- Industrial grade and tamper resistant
- Factory fitment possible



- Multi-Profile SIM Automatic Network Switching
- Remote Provisionable











SenseLCM® : Lifecycle Management for Embedded SIM & Subscriptions

Home Add Device Add Subso	cription Change Profile		Greetings Customer Sign out
Sensorise	My Devices	Q Search	x
	My device:Raspberry Device	Subscription	Vodafone
BOXY NL	Manufacture : Rasberry Pi foundation Model: Rasberry Pi 2 Model B	Account balance	INR 400
and the second se	Serial:082476293475 IMEI: 44-015320-34-3751	Valid to:	3-Oct-2015
		Remaining quota:	12 MB

SenseTrack: Tracking device with eUICC



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Embedded, Secure and Remote Manageable connectivity



Intelligent Applet



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The Market need

- India is a huge country, no single operator has perfect coverage
- Tracking assets (vehicles) reliably is a problem is vehicles may be out of coverage for a long period
- Selecting the "wrong" operator for a certain area will make a poor service, and switching operators is very costly compared to the cost of the actual subscription
- Mission critical services has to rely on double GSM modems and subscriptions (dual SIM) to ensure good enough quality
- Theft or "borrowing" of SIM cards degrades the service further

QoSim®

- Multiple subscription on the same card ; detects network coverage loss; switches to the next subscription
 - ✓ Provides Quality Of Service
- Can be remotely managed by the SenseLCM[®] to switch network depending on quota or other rules
 - ✓ Optimizes Cost and Performance
 - Remote Profile Management; download new subscription in the field
 - ✓ Enable factory fitment and reduce file support
- Auto-locking to the device restricts un-authorized use in a different device
 - ✓ Security
- Diagnostics features help in troubleshooting the connectivity problems
 - ✓ Troubleshooting



Lifecycle Management Portal Sensorise SenseLCM[®]















SenseL@M							Logged in as : Administrator Date Time : 2017-03-27 12:53					
Account Name : Sensorise Account Number : SENSE1000						Home	QoSim	Company 👻	User Management 🔻	Profile 🔻	Logout	
OSIM D	EVICE DETAI	LS										
Vehicle Registration Number SEARCH DETAILS												
CSV		Search:										
Sr. No.	Vehicle No 🛛 🔫	Device IMEI 🛛 🖨	Use Case	🔷 Make	🔷 Model 🖨	Customer	🔶 Dealer		Primary MSISDN	Fallback	🔷 Status	\$
1	OR-05-Q- 6809	862462031864829	VTS	SKYLABS	V400	VENKAT CHANDAK	GLOBAI TALCHE	SOLAR VENTURE	9170420461	15 91706505	5708 Installed	
2	OR-05-Q- 6808	862462031960528	VTS	SKYLABS	V400	VENKAT CHANDAK	GLOBAI TALCHE	SOLAR VENTURE	9170420447	34 91706505	4474 Installed	
3	OR-05-Q- 6807	862462031921306	VTS	SKYLABS	V400	VENKAT CHANDAK	GLOBAI TALCHE	SOLAR VENTURE	9170420449	39 91706505	4487 Installed	
4	OR-05-Q- 6804	862462031866311	VTS	SKYLABS	V400	VENKAT CHANDAK	GLOBAI TALCHE	SOLAR VENTURE	, 9170420399	18 91706505	4231 Installed	
5	OR-05-Q- 6803	862462031871907	VTS	SKYLABS	V400	VENKAT CHANDAK	GLOBAI TALCHE	SOLAR VENTURE	, 9170420342	12 91706504	1463 Installed	



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Sensorise, QoSim[®] and SenseLCM[®] Compliance

- QoSim[®] card Compliant to ETSI Standards
- QoSim[®] Card Compliant to TEC Interface Requirements
- QoSim[®] Service Compliant to TRAI Guidelines
- QoSim[®] Service Platform compliant to DoT M2M Service Provider Draft Guidelines
- Agreements with TELCO's
- Capex Free Service Offering for the M2M proliferation
- TELCO, SIM Partner and Device OEM Independence















Sensorise Consulting

Value Proposition

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- Image Processing
 - Surveillance
 - Maintenance
- Energy
 - Solar Power Prediction
- Machines
 - Condition Based Monitoring for Preemptive maintenance
- Retail
 - Demand Prediction
 - Merchandize planning
 - Price Optimization
 - Workforce Deployment
- Automotive
 - Driver Behaviour

Insurance

Sense

- Claim Prediction
- Lapse & Persistency modelling

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Fraud Detection

- Surveillance
 - Real time detection of People Count
- Maintenance
 - Time bound cleaning of the ATM room
- Technologies Used
 - Motion Detection
 - Haar Classifiers



Sensorise | Components of M2M Analytics Framework



Data Aggregation

Data

Streaming

With Sensors

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Use Case 2 | Solar Power Forecasting



Scope

Backgroud:

- Uncertainty and variability in solar photovoltaic power output is the biggest challenge in integrating solar power sources to existing grid
- Prediction has direct impact on the profitability of Electricity distribution companies

Scope: To forecast solar energy output for up to a day ahead using advanced statistical learning



Approach

- Non-uniform and diverse sampling rates
- 2.5 years training data
- Decided not to use Weather forecast data

Key Machine Learning Activities:

- Data imputation, outlier removal, interpolation, feature selection, statistical learning classifier
- Modeling Tool : R

Features

- Mean Absolute Percentage
 Error ~ 20% calculated over
 2 year period
- Error mostly attributable to inherent error in Numerical Weather Prediction
- Accurate short term prediction possible if measured weather prediction data is also





Proposed Cooperation Models

Collaboration Model and Technical Approach

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Areas of Collaborations



- General Insurance Analytics Models
 - Lapse
 - Churn
 - Up Sell or Cross Sell
- Pay as you go Models
 - Driver Driving Habits
 - Normal Driving Routes
 - Theft Protection
- Tracking Device and Portal
- QoS in Connectivity
 - Embedded SIM with dual profile









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Thank You

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For More information <u>www.sensorise.net</u> Contact: <u>care@sensorise.net</u>



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