



## Smart Environment sensing



The top screenshot displays the Yuktix AWS interface with the following data:

Light (lux)	Temperature (°C)	Humidity (%)	Wind (m/s)
31	27.4	79.0	3.8
0	92	0.0	SW

The bottom screenshot shows a list of devices:

- magnet01: Location (L1), Status: Available, Data-report for remote monitoring, Last Resp: 20-01-2015, 09:27 pm.
- power01: Public Meter Center (L0), Location (L1), Status: Available, Data-report for remote monitoring, Last Resp: 21-01-2015, 01:12 pm.
- power01: South Orissa, Status: Available

# Sensor networks

- Sensors help you collect data from the physical world
  - Agriculture: Weather sensors
  - Air: Pollution sensors
  - Machines: On/Off, Vibration
  - Accelerometer/Pressure/Light in your phone
- Sensor networks allow you to collect data from a huge number of sensors in one place. Scale brings in interesting dynamics.
- Examples
  - Agriculture, Urban infrastructure, Asset monitoring in Manufacturing, Green Buildings, Elephant scanner, GPS for stopping pilferage ...

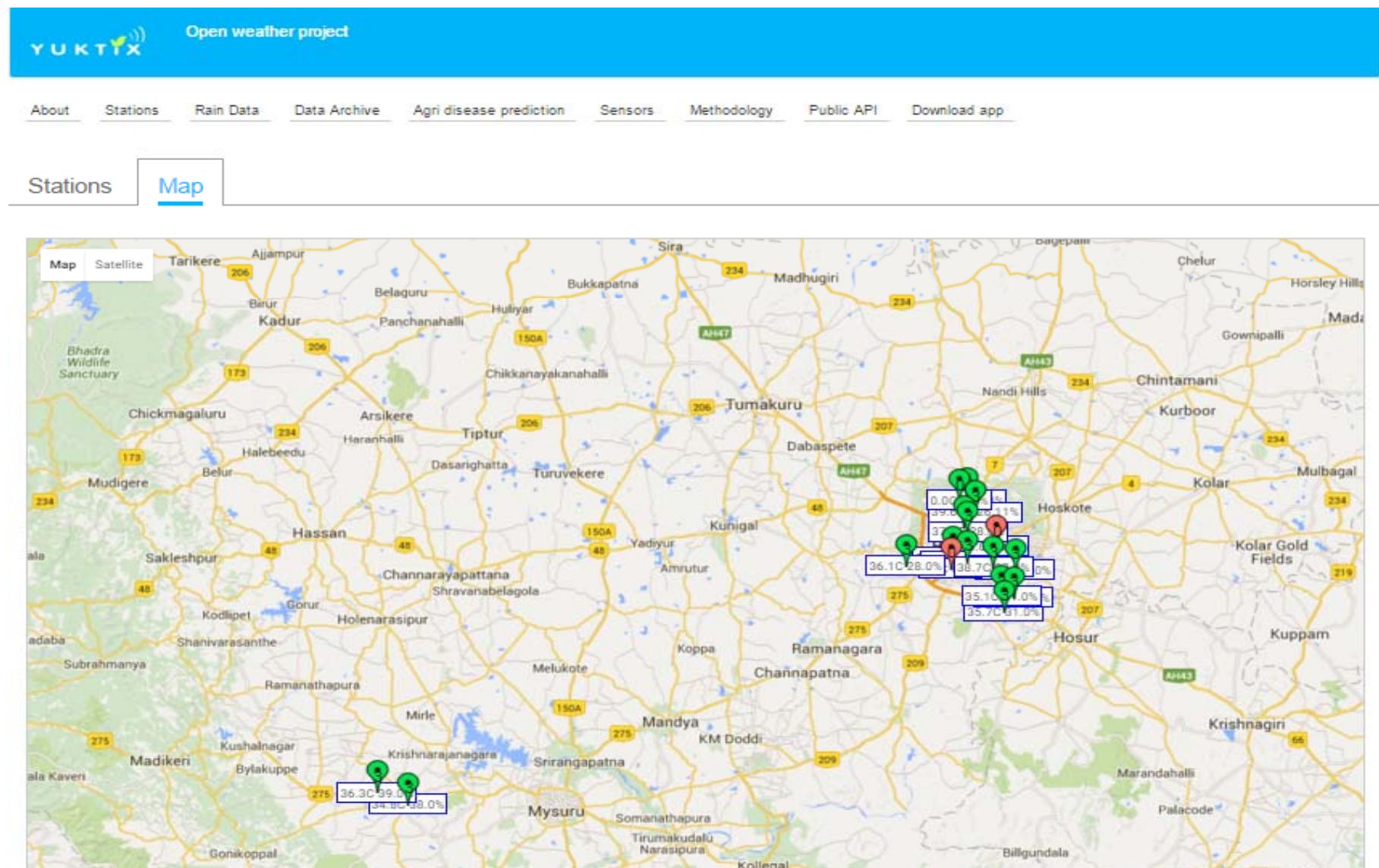
# Environment monitoring

- Better data from Environment = Better decisions
- We are extending the idea of pervasive computing to our environment
- Concrete examples? Can we do something today? Will someone pay?
- Application to Agriculture, Smart Infrastructure and continuous monitoring domains.
- About Yuktix.

# Bangalore network: Weather Station



# Bangalore Open Weather Network



[www.yuktix.com/m/aws](http://www.yuktix.com/m/aws)

[www.yuktix.com](http://www.yuktix.com)

# Installations



← → C ⌂ i www.yuktix.com/m/aws/iasri-potato-blight.php

Apps Alf-Egil Bogen | Ins... yuktix-public-api My Product Keys -... My Product Keys -... Q What are the most... a aws case Details >> Other Bookmarks

About Stations Rain Data Data Archive Agri disease prediction Sensors Methodology Public API Download app

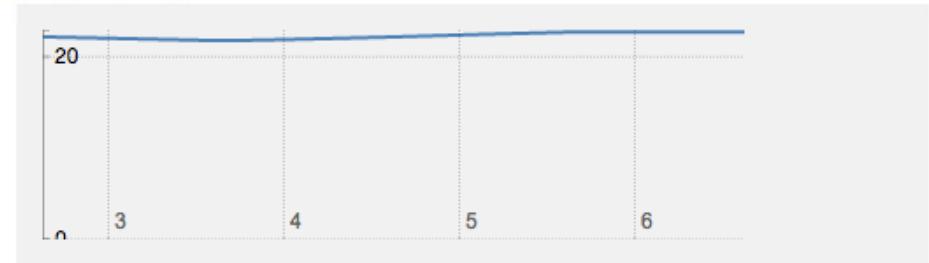
# IASRI potato late blight forecast model

select station GKVK Campus

Total Rainfall in last 10 days	107mm
Average temperature (last 5 days)	22.3C
Min. Temperature (today)	19.8C
Do we have chance of late blight today?	Yes

Date	Avg. temperature (C)
2-Aug-2016	22.15
3-Aug-2016	21.74
4-Aug-2016	22.14
5-Aug-2016	22.66
6-Aug-2016	22.68

Temperature



# Recipe to drive 10x effects in sensing?

- Recipe?
  - Cost effective sensors – better coverage/ continuous monitoring/Pervasive.
  - Better data infrastructure – everything is connected. 100 INR DATA SIM
  - Network of networks and more communication options (smart city example/ WB in UK)
  - Designed to the need
  - Better software (computing). No one needs data dumps.
  - Democratization of technology (Not everyone can afford Siemens BM!)
  - Data vs. instrument view. Instrument should be easy and go into the background.
  - Isn't this all done already? Not all problems are equal (Soil NPK?)



# Our IP / New things

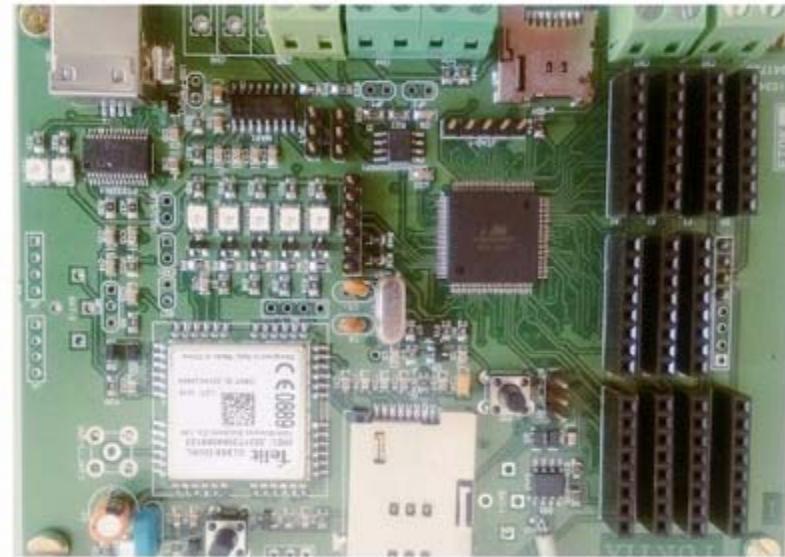
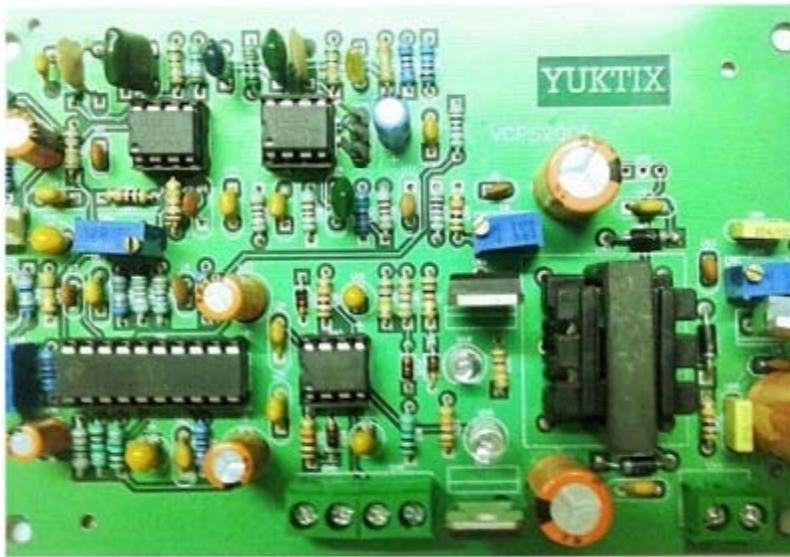
- Can we have an infrastructure where I can just plug-and-play new crops rather than doing them from scratch?
- Can we just drop temperature sensors for Potato and Leaf wetness for Tea?
- Greenhouses in India – need to leapfrog sensing. Can I design a smallish 2000 INR unit for sensing.
- Warehouses Poisonous gas monitoring
- Cold storage/ Grain Silos/ Ripening chambers/ Livestock RFID
- Pollution Monitoring

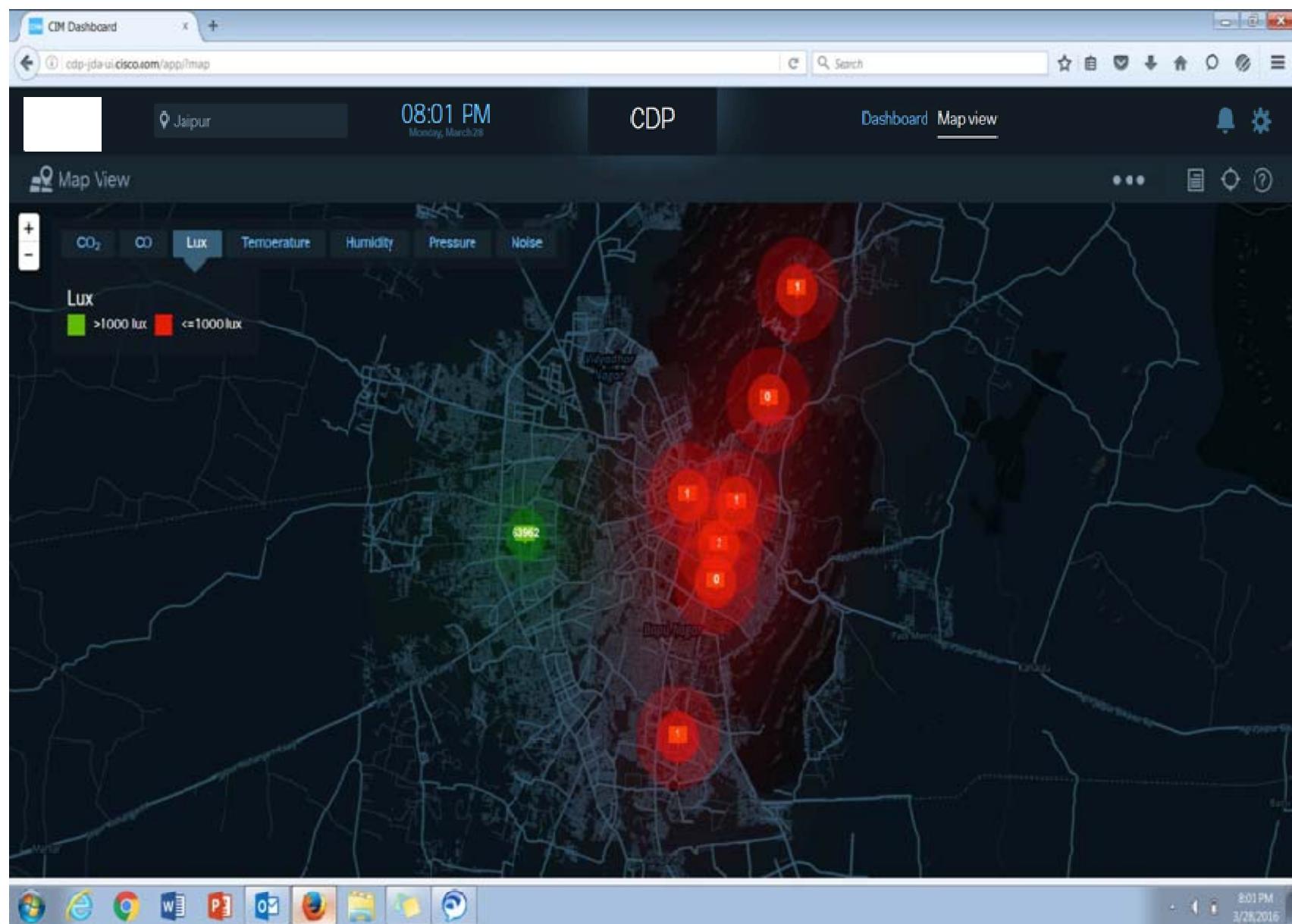


Yuktix Technologies

**AIR QUALITY STATIONS**

# Yuktix Designs





# Yuktix offering

- New class of Sensors – Ambient Noise sensor design
- Sensors interfacing + H/W Design expertise
- Core Software: Data protocols, software on sensor devices, software for cloud integration. Software for data archiving / alerts etc.
- Device management, tracking and data collection interfaces. View your devices on a dashboard.
- Solutions on top – weather stations, air quality stations, Lake dashboard.

# clients



# Team



Rajeev Jha. 16 years in Industry. Rajeev worked for Oracle, AOL, Everypath, Indegene and Citrix. IIT Kanpur 1999, PGSEM from IIMB



Ashok Verma. 35 years of Hardware design experience. IIT Kanpur 1980. Philips..



Shailendra Singh. Embedded Engineer from UPTU. Part of Department of Defence SuryaYaan Fixed wing Drone project.



Arun. 25 Years of Industry experience. IIT Kanpur 1990. He worked for APC, Schneider and ITI.

# Media Coverage

**The Economic Times**

**Panache**

**Groups, individuals work on smart moves to make smart cities**

By Arshya Anandwani | PT Bureau | Jun 12, 2013, 04:44 AM IST

BENGALURU The 'Smart City' initiative of the Narendra Modi government has so far been a centralized effort, identifying large players, marking boundaries within cities to build out a working model. Parallel to this, groups and individuals are working towards the same goal of making the city smart, but with a markedly different approach.

Some are trying to create more open platforms so that entrepreneurs can build applications or apps. A few individuals have started their own sensors to monitor

## The Economics Time – Smart City Initiative

**THE HINDU**

**TODAY'S PAPER > PROPERTIES PLUS**

**Understanding the weather**

By VISHWANATH | Jun 13, 2013, 04:45 AM IST

Getting accurate details of the rainfall patterns and understanding weather models are very crucial, says S. Vishwanath.

The monsoon is predicted to be a below-normal one for the entire sub-continent. Predictions at such large scale can only be for general propagation but a much more granular prediction is required if one truly has to take significant action.

For a long time weather stations were few and far between. The Indian Meteorological Department, for example, reported rainfall measurements from two stations in Bangalore, the site in the centre near Mysore's Institute College for女生 and one from the old airport. The city which is now expanding in size has a single station. Now, another wave of weather stations are coming. The Karnataka State Natural Disaster Monitoring Centre, for example, reports from its teleweather rain gauge from the city of Bangalore and generates a daily report for the city which is available on its website (<http://karn.nic.in>) in 'NMAP\_DAILY\_REPORT.pdf'. A look at the map will show how varied and local rainfall can be across a city.

But only that can be inferred in the middle GRD reports and it can give you ideas along with high intensity of rainfall reported at a station or even a city. This is of immense value in not only understanding where the rainfall has been heavy but to be able to be prepared to respond to urban floods and flooding.

## The Hindu – Understanding the weather

**Bangalore Mirror**

**THE WEATHER TRACKERS**

By Srinivas Maddala | Bangalore Mirror Bureau | Sep 14, 2014, 04:45 AM IST

These Bangaloreans have set up the Citizen Weather Network initiative to track the city's rainfall.

Every Bangalorean has said it at least once in their lifetime – it's getting better everyday. But if one happens to say this to a Parisian friend, he'll probably ask, "Where is the data supporting the statement?"

Along with his friend Ravindra Chandy, he started what is probably a first for the city – a Citizen Weather Network initiative which aims at capturing real-time weather data from 25 locations in the city and makes it available to the world via a web API free of cost on the internet. Chandy

## Bangalore Mirror – The weather trackers

**VOICE AND DATA**

**Wi-Fi solutions for real-time microclimate intelligence: Yuktix**

By Anusha Advani | With the advent of Internet of Things (IoT) and cloud technology, traditional method of weather monitoring and forecasting is passé. Sensor-based environmental

## Voice And data Magazine

# Published Papers

1. Low power WSN and Cloud infrastructure for remote lake water quality monitoring – Funded by Oracle CSR in collaboration with ATREE and BIOME environmental Solutions ([Link](#))

## Low Power WSN and Cloud Infrastructure for Remote Lake Water Quality Monitoring

S. Singh<sup>1</sup>, P. Ranjan<sup>2</sup>, R. Jha<sup>1</sup> and M. R. Tripathy<sup>2</sup>

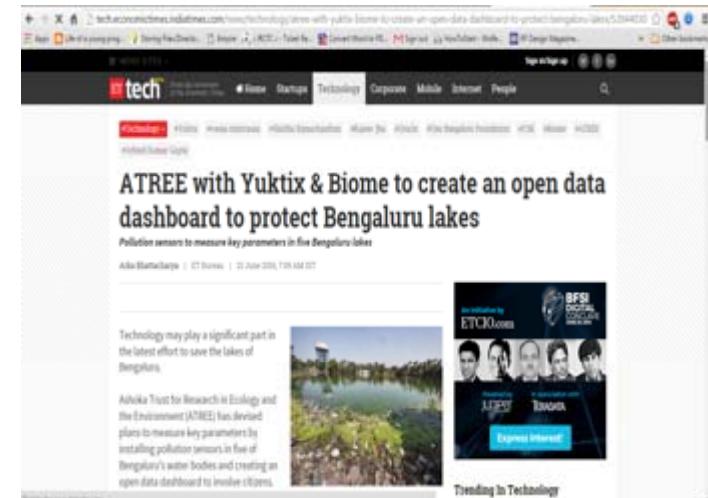
<sup>1</sup>Yuktix Technologies Pvt. Ltd, India

<sup>2</sup>Amity School of Engineering and Technology, Amity University Uttar Pradesh, Noida, India.

**Abstract—** Bangalore is star capital of Karnataka, India and also known as IT capital of India. In 1975, total number of lakes in Bangalore was 51 which had reduced down to 17 now because of population growth, land encroachment and water pollution. Earlier they were a good source of daily use water but now due to excessive pollution, it cannot be used. A new system is proposed based on Low power WSN dubbed with cloud infrastructure to monitor water quality in the lakes in real time during different seasons in a year and see the variation of water quality in different region i.e. close to human hab. in middle of lake, during rainy season etc. Basic plan to conduct this experiment simultaneously across the 17 lakes in Bangalore. With the data collected, suitable measures can be suggested to government to take effective action in order to save the existing biodiversity across the lakes. Cloud infrastructure can be useful to see and analyse real time data from anywhere and even archive data which can be further downloaded to see variation in last few years. Similar approach can be implemented to measure real time air quality in Bangalore and some of other major polluted cities like Delhi.

### 1. INTRODUCTION

Bangalore being the IT capital and hub of India attract people from all over the nation. Population of Bangalore [1,2] had increased drastically. With increased population, these lakes have been abused by government and public at large. This kind of systematic encroachment has caused severe extreme pollution in the lakes or even total extinction. As population comes close to the water bodies, without any proper passage of sewage and waste water from homes, waste water is piped in the lakes which further exacerbate the problem. As per the current study by Bangalore authority, Lakes in Bangalore have been a major place for bird life.



2. Software Aspects of WSN for monitoring in an Indian Greenhouse – CICN 2015 , IEEE.

## Software aspects of WSN for monitoring in an Indian Greenhouse

Shailendra Singh, Rajeev Jha  
Yuktix Technologies Pvt Ltd  
Bangalore, India.

Priya Ranjan and Malay Ranjan Tripathy  
Amity School of Engineering and Technology  
Amity University Uttar Pradesh, Noida, India.  
e-mail: priyanjan@gmail.com

**Abstract—** Horticulture industry in India is beginning to see the technological drive and that leads to the low production of greenhouse. In this paper we propose a low cost solution for greenhouse. Sensors like temperature sensor, humidity sensor, soilmoisture, solenoid valves etc. which may cost upto Rs. 4 lakhs, money won't be affordable for greenhouse owners. Keep this in view, we propose an innovative implementation of software aspects of WSN (Wireless Sensor Networks) for greenhouse management. Using Yuktix cloud, Oracle's Java based hardware platform along with end sensor nodes and CDAU (Central data acquisition unit) together can be used to locally /remotely monitor internal conditions of greenhouse chamber using Yuktix cloud via Web-application and Android application as well as the internet enabled mobile can be used to control the greenhouse using Yuktix controller. Some data in the cloud can be downloaded from the archive further to do the in-depth analysis like analysing the shift/break order statistics in the mean temperature and humidity around the year and so on.

With implementation of WSN in a greenhouse, internal environment of greenhouse data can be made available to greenhouse managers and owners from anywhere over the cloud architecture on condition of no network connection on the site.

# In News

- Top 10 IOT companies in India –

[Analytics India magazine.](#)

The screenshot shows a web browser with the URL [analyticsindiamag.com/10-best-iot-startups-to-watch-in-2016/](http://analyticsindiamag.com/10-best-iot-startups-to-watch-in-2016/). The page title is "Yuktix". The main content discusses Yuktix as an IoT startup based in Bangalore. It highlights their focus on environment monitoring solutions for emerging markets, their plug-and-play platform, and their ability to support various communication protocols like GSM/GPRS, Ethernet, WiFi, and LoRaWAN. A sidebar titled "POPULAR POSTS" lists various articles from the magazine.

- Nasscom – Emerge 50 Winner – 2015

The screenshot shows a slide from a presentation on SlideShare. The title of the slide is "Emerge 50 Profiles". It features two columns of company profiles. The left column is for "Yuktix Solutions Pvt. Ltd." and the right column is for "Vivaha Technologies Private Limited". Both profiles include basic information like name, year of incorporation, headquarters, and website. The right profile also includes a brief description of their product, "Agricultural Disease Prediction". The presentation has a navigation bar at the bottom with icons for back, forward, and search.

# Applications

	INDUSTRIAL	URBAN/GREEN BUILDING	ENVIRONMENT SENSING	MINES, OIL AND GAS	AGRICULTURE	ENERGY AND INFRA
	<ul style="list-style-type: none"> <li>• Remote Control and Automation</li> <li>• Industrial Interfacing</li> <li>• Cold storage gas sensing</li> </ul>	<ul style="list-style-type: none"> <li>• Car Parking Ventilation</li> <li>• Autonomous HVAC control and automation</li> <li>• Outdoor lighting on Mesh Network</li> </ul>	<ul style="list-style-type: none"> <li>• Landfill Gas monitoring</li> <li>• Air Quality Monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Gas Detection</li> <li>• Methane leak detection</li> </ul>	<ul style="list-style-type: none"> <li>• Weather Monitoring for crop health</li> <li>• Post Harvest ethylene monitoring</li> <li>• Smart Greenhouse automation</li> </ul>	<ul style="list-style-type: none"> <li>• Substation Monitoring</li> <li>• Wireless sensor networks for structural health of bridges</li> </ul>



# Contact

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