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**Monitoring the Jungle with**

**Internet of Trees (IoT)**

**leading to the creation of a**

**Jungle-book as opposed to Face-book**



*Professor Liyanage C De Silva*

*Dean*

Faculty of Integrated Technologies (FIT)

Universiti Brunei Darussalam (UBD), Brunei Darussalam

liyanage.silva@ubd.edu.bn

<http://fit.ubd.edu.bn>

**Abstract:**

We are constantly monitoring many parameters of the environment using a multitude of sensors. The importance of environment monitoring technology has become a vital field of research and development for ecological progression worldwide. The environmental/earth monitoring systems can be connected to receive information such as temperature, humidity, air/water pollution data, lake/river pollution information, land monitoring statistics and plant/crop growth indicators. Also, applications such as pollution monitoring, chemical hazard detections, flooding detection, and weather forecasting are becoming hugely importance to the society. These applications can be realized using a low-cost, reliable and efficient systems through an IoT framework.

In this presentation a review of the state of the art of smart homes using sensor technologies and Internet of Things (IoT) will be presented. At first a look into the research work related to smart homes from various viewpoints will be discussed. This includes looking from the viewpoint of specific techniques such as smart homes that utilize computer vision-based techniques, smart homes that utilize audio-based techniques and then smart homes that utilize multimodal techniques. I will look at it from the viewpoint of specific applications of smart homes such as eldercare and childcare applications, energy efficiency applications and then in the research directions of multimedia retrieval for ubiquitous environments. Using a survey, we found out that some well-known smart home applications like video-based security applications has seen the maturity in terms of new research directions while some topics like smart homes for energy efficiency and video summarization are gaining momentum. Finally, I will present some of our recent attempts to apply IoT into connected forests or smart forests leading to coining the phrase “IoT - Internet of Trees”. In the same note of using IoT in homes, use of IoT in the forests in the form of Internet of Trees (IoT) will give an added benefit to the living beings and plants in the jungle. Internet of Trees can help us to produce an equivalent of the “Face-book” in the jungle; a “Jungle-book”.

**Bio Data:**

Professor Liyanage C De Silva received BSc Eng(Hons) degree from the University of Moratuwa Sri Lanka in 1985, MPhil degree from The Open University of Sri Lanka in 1989, MEng and PhD degrees from the University of Tokyo, Japan in 1992 and 1995 respectively. He was with the University of Tokyo, Japan, from 1989 to 1995. From April 1995 to March 1997 he has pursued his postdoctoral research as a researcher at ATR (Advanced Telecommunication Research) Laboratories, Kyoto, Japan. In March 1997 he has joined The National University of Singapore as a Lecturer where he was an Assistant Professor till June 2003. He was with the Massey University, New Zealand from 2003 to 2007. Currently he is a Professor of Engineering and the Dean of the Faculty of Integrated Technologies (FIT) at the Universiti Brunei Darussalam (UBD).

Liyanage’s current research interests are Internet of Things (IoT) Neural Network Applications, Image and Speech Signal Processing (in particular multi modal emotion recognition and speech emotion analysis), Digital Communication (CDMA, OFDMA etc.), Information theory (source coding), Pattern recognition and understanding (biometric identification), Multimedia signal processing, and Smart Sensors (Smart environments for security, eldercare and energy efficiency).

Liyanage has published over 175 technical papers in these areas in international conferences, journals and Japanese national conventions and jointly holds three US, one Brunei and one Japanese national patent. The Japanese national patent was successfully sold to Sony Corporation Japan for commercial utilization. Liyanage’s works have been cited as one of the pioneering works in the bimodal (audio and video signal based) emotion recognition by many researchers. His papers so far have been cited by more than 3000 times (according to scholar.google.com) with an h-index of 22.