# Cascade

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## Editorial

### Ambient Intelligence

The basic idea behind Ambient Intelligence (AmI) is that by enriching an environment with technology (mainly sensors and devices interconnected through a network), a system can be built to take decisions to benefit the users of that environment based on real-time information gathered and historical data accumulated. AmI inherits aspects of many cognate areas of Computer Science, but should not be confused with any of those in particular. Ambient Intelligence puts together all these resources to provide flexible and intelligent services to users acting in their environments. Of Importance for AmI are the "5Ws" (Who, Where, What, When and Why) principle of design:

*Who:* the identification of a user of the system and the role that user plays within the system in relation to other users.

*Where:* the tracking of the location where a user or an object is geographically located at each moment during the system operation.

*When:* the association of activities with time is required to build a realistic picture of a system's dynamic.

*What:* the recognition of activities and tasks users are performing is fundamental in order to provide appropriate help if required. The multiplicity of possible scenarios that can follow an action makes this very difficult. Spatial and temporal awareness help to achieve task awareness.

*Why:* the capability to infer and understand intentions and goals behind activities is one of the hardest challenges in the area but a fundamental one which allows the system to anticipate needs and serve users in a sensible way.

An important aspect of AmI has to do with interaction. On one side there is a motivation to reduce the human-computer interaction  as the system is  supposed to use its intelligence to infer situations and user needs from the recorded activities, as if a passive human assistant was observing activities unfold with the expectation to help when (and only if) required. On the other hand, a diversity of users may need or voluntarily seek direct interaction with the system to indicate preferences and needs. Today, with so many gadgets incorporating computing power of some sort, HCI continues to thrive as an important area of study.
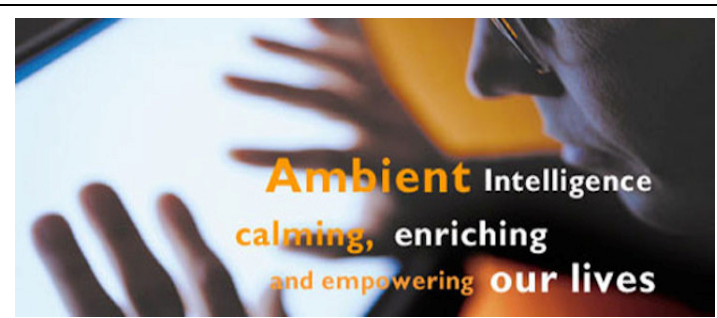
# Events conducted at IE Building, Bharath Heavy Electricals Ltd.(BHEL)

A special lecture on 'Bitcoin (Internet Age Digital Currency)' was organized on 8th April 2014. Shri G.S. Ragunathan, AGM, Informatics Centre, BHEL, Tiruchirappalli was the resource person. He spoke on the basics of the Bitcoin technology in which he said that Bitcoin makes all transactions public, so that everybody is aware of all transactions and is able to verify the chain of ownership and the non-existence of Double - spending attempts. He also highlighted on the advantages and drawbacks of bitcoin.





On 13th May 2014, Ms. A. SanthaKumari, DGM, Welding Research Institute BHEL, Tiruchirappalli gave a special lecture on 'Computing of Weld Signature Analysis'. The main objective of her lecture was to understand how signature analysis is used to analyse the electrical data collected through a welding process. She said that the automated evaluation on dynamic characteristic of the arc welding power source has currently emerged as a popular research topic. The process signal analysis could be used not only for the evaluation of welding power sources and welding consumables but also for evaluation for the skill of welders, she added

Ms. V.R. Nirosha, Engineer, Informatics Centre, BHEL, Tiruchirappalli gave a special lecture on 'Motion Capture Systems and Methodologies' on 10th June 2014. She highlighted on the basics of motion capture and the various steps involved in the process such as Calibration, Reconstruction, Labeling, Auto labeling, Defragmentation, and Gap filling. She also talked about creating the model, event labeling and data processing pipeline. Finally she concluded her lecture by giving a few future directions in motion capture.

## Events conducted at MAM College of Engineering (MAMCE)

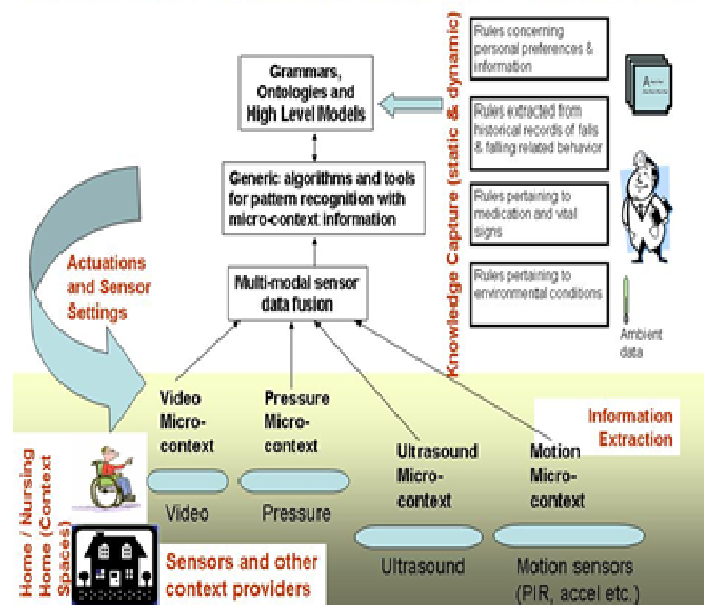| S.No. | Date (s) | Activity |
|---|---|---|
| 1 | 09-04-2014 | Workshop on Golden Hour  by  Mr. B.V. Ramanan, CEO, LIVPET, Pudukkottai |
| 2 | 15-04-2014 | Special Coaching for DBT Lab by Mr. N.Baskaran, Project Manager, CTS, Chennai |
| 3 | 01-05-2014 to 03-05-2014 | Mobile Application Development using Andriod workshop by  Mr. J. Naveen, Assistant Professor, CSE, MAM College of Engg., Tiruchirappalli |
| 4 | 16-06-2014 to 21-06-2014 | AMCAT Soft Skills Training was given to the final year BE students |
| 5 | 23-06-2014 to 27-06-2014 | AMCAT Technical Training on Computer Software and Hardware, Internet, Data Structure, OS and DBMS was given to the final year BE students |
| 6 | 23-06-2014 & 24-06-2014 | Lab View  Core 2 Training was given to the students of EEE |

## Management Committee Meetings

Management Committee meetings was held on 09-05-2014. Most of the EC members attended the meeting, actively took part in the deliberations and many resolutions pertaining to the excellent conduct of various activities in the chapter were made.

## Just for Thought

Life is not all about success and failure. We cannot measure the value of life by adding all the successes and subtracting all failures.  Both success and failure are means to an end, which is holistic growth of the soul. The spirit needs all kinds of contrasting experiences, the good, the bad, suffering, happiness, success and failure – for it to mature.  A mature soul goes through failure successfully.

# Ambient Intelligence in Home Environment

A young mother is on her way home, driving together with her 8-month old daughter who is sleeping in her child seat on the passenger side of the car. The infant is protected by an intelligent system against airbag deployment, which could be fatal in the case of an accident. The system detects when there is a child seat on the passenger seat instead of a person and automatically disables the airbag. Arriving home, a surveillance camera recognizes the young mother, automatically disables the alarm, unlocks the front door as she approaches it and turns on the lights to a level of brightness that the home control system has learned she likes. After dropping off her daughter, the young mother gets ready for grocery shopping. The intelligent refrigerator has studied the family's food consumption over time and knows their preferences as well as what has been consumed since the last time she went shopping. This information has been recorded by an internal tracking system and wireless communication with the intelligent kitchen cabinets. Based on this information, the refrigerator automatically composes a shopping list, retrieves quotations for the items on the list from five different supermarkets in the neighborhood through an Internet link, sends an order to the one with the lowest offer and directs the young mother there. When arriving at the supermarket, the shopping cart has already been filled with the items on her shopping list. Spontaneously, she decides to add three more items to her cart and walks to the check-out. Instead of putting the goods on a belt, the entire cart gets checked out simply by running it past an RFID transponder that detects all items in the cart at once and sends that information to the cash register for processing. What sounds like a science fiction story is an illustration of possibilities AmI can offer people in their private lives and of the main driving forces towards AmI for home use:

- convenience
- cost savings
- time savings
- security
- safety
- entertainment

If companies succeed in offering AmI technology at a price that people are willing and able to pay for the associated benefits, AmI can turn into an entirely new market. More companies are investing considerable sums on research and development of AmI in anticipation of market expansion. For example, Besides the positive value that AmI offers in the home environment, there are also critical points that require careful consideration before launching AmI technology in the market: protection of privacy, costs, minimum network scope. AmI systems must protect the privacy of the users. This is likely to be the main concern of customers when making a purchasing decision. For this reason, marketing needs to point out the security advantages AmI can offer, while R&D needs to continue improving network protection against intrusion to improve security reputation of technology.

The introduction of AmI in a home environment will have an impact on personal lives in several ways. The time gained will allow people to spend more time with their family and friends. Convenience, money and time savings, security, safety and entertainment all reduce stress leading to an overall higher quality of life. However, the ability to prepare or complete more and more everyday tasks such as shopping or banking at home potentially leads to reduced face-to-face interaction between people or, at least, to selective interaction restricted to mainly family and friends.

IGNORE THOSE PEOPLE ALWAYS TALKING BEHIND YOUR BACK. THAT'S WHERE THEY BELONG. JUST BEHIND YOUR BACK.

YOU ARE YOUR INSPIRATION
YOU ARE YOUR SOLUTION
YOU ARE YOUR MOTIVATION