

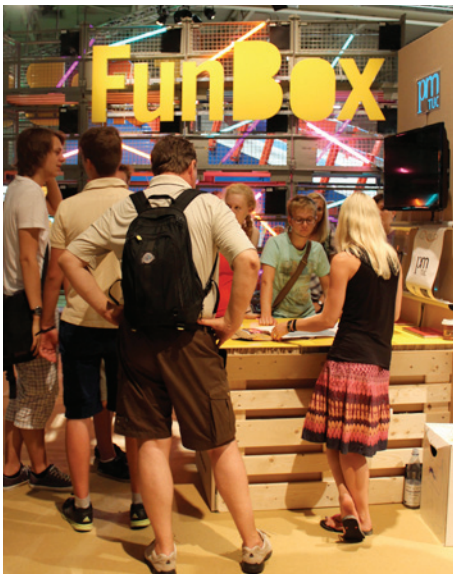
pmTUC EVENTS

pmTUC fascinates prospective junior researchers at IdeenPark fair

Under this year's motto „Unbelievable but IdeenPark“, the trade fair IdeenPark took place with more than 120 exhibitors from the fields of science, education, and economy from 11 – 23 August in Essen. Interesting exhibits and future-orientated prototypes to touch were presented and people were invited to experiment to get to know the fascination of technology and innovation.

The focus of the trade fair was directed to problems of current global trends, involving social, ecological and economic issues. Worldwide trends like rapid population growth, urbanisation, globalisation, increasing environmental pollution, and shortage of raw materials are problems which can only be solved through highly innovative technical inventions.

Within this framework, the Institute for Print and Media Technology at Chemnitz University (pmTUC) presented its most recent research results. For more than 10 years, pmTUC, under the guidance of Prof. Dr. Arved Hübler, is conducting research on sustainable and innovative technologies



in the field of printed electronics. Core elements of the exhibits presented by pmTUC were fully printed speakers and paper solar cells.

The sound from paper and foil ensured amazed looks from the mixed audience. Many visitors could only be convinced of the acoustic effects generated by the presented materials by feeling the vibrations of the substrates. The application is realised by printing different layers of conductive polymers and a piezo-active layer on conventional printing substrates. The fields of application of these very cheap speakers are almost endless. They could be used, for instance, as sound wallpapers or integrated into conventional printing products for advertising purposes.

Another highlight, presented by pmTUC, was the solar tree. Paper solar cells in form of leaves were attached to a tree, whose energy yield was visualised with the help of a multimeter. It is imaginable that printed paper solar cells become an important pillar for future energy supply, especially in terms of their resource-conserving and cheap provision of electrical energy. AB

pmIndia hosts 4th conference on “Packaging Printing”

In December 2012, pmIndia, the joint venture of the leading Indian printing consultants “Graphic Arts Technology and Education” and pmTUC, hosts the 4th Indo-German conference on packaging printing. The conference series was initiated in 2009 and has ever since attracted a broad audience from science and industry. The focus of this year's conference is on flexography and gravure. Further, a special session on printed electronics and functional printing is planned. The 2012 event takes place in three Indian cities:

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|-----------|--------------------|
| New Delhi | 10th December 2012 |
| Hyderabad | 12th December 2012 |
| Mumbai | 14th December 2012 |

For more information, please visit www.pm-india.in SS

pmTUC RESEARCH NEWS

Unsuitable OCR document processing

Let us suppose, you want to convert written text from your favourite magazine into digital format. In other words: you want to store them in your computer. You could type the text by using the keyboard. But if the text is several pages long it's most likely that you make some mistakes while typing or you may get bored after several hours of typing. At this point, Optical Character Recognition (OCR) technologies for digitising documents come into play. OCR is a technology that enables us to convert different types of documents such as scanned paper documents, PDF files or images captured by a digital camera into editable and searchable data.

Computer scientists have achieved good results in digitising texts printed in modern scripts. However, to digitise non-printed materials like old historical documents modern OCR technologies cannot be applied as old fonts, language variation and complex layouts are used. We call these documents non-suitable OCR documents.

Therefore, researchers at pmTUC have developed methods for the automated coding and processing of unsuitable OCR documents under the running project inVENOD, which is funded

by DFG (German Research Foundation). pmTUC has designed a prototype software written in Java and Scala programming language, which automatically analyses, prepares and processes non-suitable OCR documents. The produced output is presented in Scalable Vector Graphics (SVG) format. The essential to our approach is the extraction of the character (glyph) set and the creation of a corresponding vector font directly from the document, instead of restricting us to a predefined and static alphabet or limited typefaces. With the help of our OCR software system, original documents can be replicated and newly made up, with the new text being searchable, editable and formatable. Our main objective is the enhancement of our software to finally process entire books written in old scripts with broken fonts. This would help libraries and online publication houses to publish their inventory in a very efficient manner. Current research at pmTUC comprises development of document-independent font generation system, handling of XML-based glyph database with Unicode assigned characters and prototype development from these glyph clusters for digitisation of old scripts. RK

pmTUC STUDENT NEWS

About Indian parents and flying beer bottles

Every one of us, i.e. the six German exchange students, expected the unexpected before arriving in India. I just knew about the delicious and spicy Indian food and the heat and colourful culture which seemed so different compared to our Western world. After spending 6 months on the subcontinent, I can say: yes, it is different and no, it is not.

Looking at the relationship of Indian children and their parents, it was one of the most significant differences. Kids remain kids for their whole lifetime. It doesn't matter how old you are, Indians always show deep respect and love towards their mothers and fathers. In Germany, in contrast, you are responsible for your own life from your 18th birthday and you become more and more independent. In India, the parents' authority plays a major role throughout one's life. "We'll call your parents!" is a sentence which often works, if you disdain the rules in college – even when you are already 23. And if the authorities do not call them, no worries, you will get a call by Mom or Dad at least once a day anyways. Indians communicate a lot by using the phone, so it is no surprise that you talk to your concerned parents several times a day.

I also got the impression that one half of the Indian students live purely traditional (non-alcoholic, very religious) and the

other half got stuck between two worlds. If you belong to the second group, which occasionally drinks and attends parties, you better keep attention to your phone, because if you hold a freshly opened beer in your hands with loud music and ten friends surrounding you, you can bet your Dad calls. So after some semesters, the second-group-youngsters became experts in getting the room quiet within five seconds and pretending they are just having dinner at home. So things, which are normal for us since we are 16 years old, can be totally new for students in India when they leave home.

But even if you get no call, there is still the chance of a surprise visit. The worst-case-scenario would be a Saturday morning with your flat full of friends, numerous empty beer bottles standing around and your father waking you up while knocking on your door. The only way not to be punished and not to be taken back home, was obvious for my friend when it actually happened to him: everything which could have caused problems had to be thrown out of the window. At least his friends were allowed to leave the flat through the door. In the end, my friend and his ongoing student life was saved.

In Germany, we get a deposit for empty bottles, in India the bottles learn how to fly. Maybe that is the reason why the logo of our favourite beer in India is a bird? KW



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