

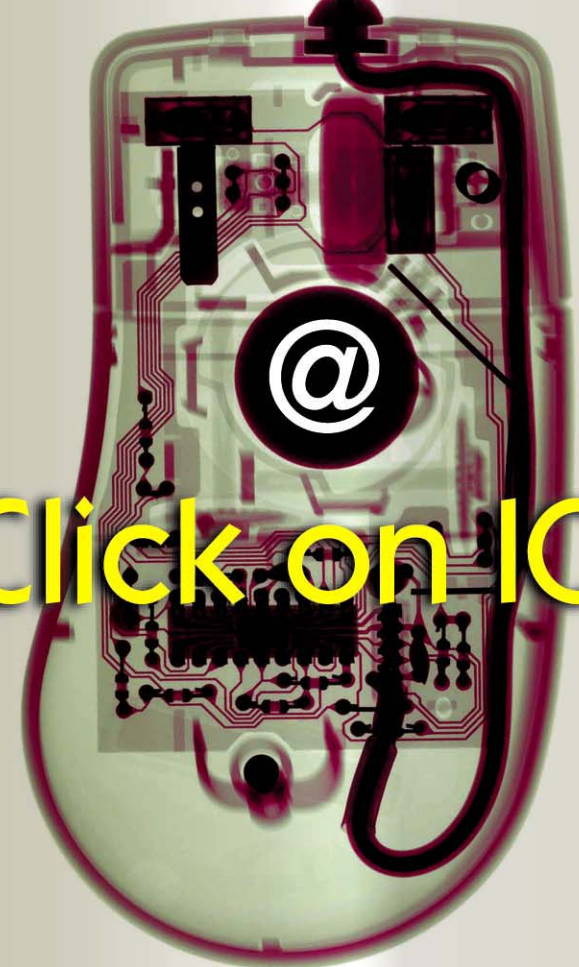


Ministry of Science, Technology and Innovation Malaysia

# InSightTs@Mastic

Volume 3 February 2006

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MASTIC



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Ministry of Science, Technology and Innovation, Malaysia

## MASTIC

Malaysian Science and Technology Information Centre



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MASTIC

MALAYSIAN SCIENCE AND TECHNOLOGY INFORMATION CENTRE  
A Division of the Ministry of Science, Technology and Innovation, Malaysia

Level 4, Block C5, Parcel C, Federal Government Administrative Centre, 62662 Putrajaya, Malaysia  
Tel: 603-8885 8038 Fax: 603-8889 2980 E-mail: [mastic@mastic.gov.my](mailto:mastic@mastic.gov.my)



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Level 4, Block C5, Parcel C, Federal Government  
Administrative Centre, 62662 Putrajaya  
Tel: 03-8885 8000 Fax: 03-8889 2980  
E-mail : mastic@mastic.gov.my

#### Concept & Design by:

Masmode Sdn Bhd (565514-T)


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# Editorial

Malaysia's ICT industry is experiencing a healthy growth. In 2004, it grew by 8.3% greater than the country's overall GDP growth of 7.2%. The industry is expected to see 12% growth this year, compared with 10% in 2005. The country's total ICT spending was close to RM32 billion in 2005, of which RM21.66 billion was recorded in the communications sector, followed by hardware RM5.7 billion, software RM2.66 billion and IT services RM1.9 billion. (Source: World IT and Services Alliance's publication *Digital Planet*).

2006 economic indicators point to higher overall growth for the national economy this year, and the optimism has certainly spread among those in the ICT industry. It is thus timely for Insights@Mastic to focus on ICT and some of the industry players. We bring the spotlight on some players from a new "kid" on the block, two-year old company Corentix Technologies Sdn Bhd to almost a decade old, public listed company MLABS Systems Berhad to Government-linked organisations MIMOS and Multimedia Development Corporation (MDC). Then we have the Department of Standards Malaysia (DSM), the nation's custodian for standards and accreditation. According to DSM, standards development in ICT is driven by the industry itself unlike in other sectors where the public sector plays a dominant role. Currently, out of some 4,000 Malaysian Standards (MS), more than 430 MS are related to the ICT industry. The list will certainly grow and with ICT players continuously pushing themselves so as to keep in track with the dynamic and fast-moving industry, the development of standards will also move in tandem, creating a win-win situation for both the Government and the industry.

The MDC has been mobilised to help steer the development of the country's ICT industry. The MDC's efforts will include the nationwide rollout of the MSC to enhance the local ICT industry, and increase usage and adoption of innovative domestic ICT products and services. In addition, the outsourcing and shared services sector outlook is also bright with Malaysia's positioning and aggressive promotion as a shared services hub and a choice location. Other sectors like systems integration, consulting, distribution and retail will also contribute positively to the industry. Other initiatives already in place are creating and promoting world-class ICT companies, enhancing current ICT flagships and introducing new products and services to boost Malaysia's competitiveness internationally. The ultimate aim is to develop an ICT export industry for Malaysia. In relation to this, the Government has drawn up a blueprint to transform from an industrial-based economy to one based on services with bright potential of attracting foreign investment. This is all part and parcel of Vision 2020 and the ICT industry has been identified as one of the key enablers for greater economic growth as well as social transformation. Malaysia is certainly heading towards the right direction. 

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# Steering MDC towards the Next Leap of MSC Development



The Multimedia Development Corporation (MDC) has a new Chief Executive Officer at the helm: Badlisham Ghazali, a veteran of Malaysia's IT industry with 18 years of experience behind him. He is formerly a Director of Hewlett-Packard Malaysia and Country General Manager of HP Technology Solutions Group. He took over the MDC's reins on January 16, 2006 from Datuk Dr Mohamed Arif Nun whose appointment ended last year.

The MDC, under the jurisdiction of the Ministry of Science, Technology and Innovation, manages and facilitates the growth of the Multimedia Super Corridor (MSC), a national project by the Malaysian Government. Launched in 1996, MSC was established to bring great advances to the country through the innovative use of ICT and accelerate Malaysia's growth towards becoming a fully developed nation by 2020. From its initial five cyber cities located in the Klang Valley, the MSC is to eventually encompass the entire country and eventually to grow into a leading ICT hub.

Badlisham now has the challenging task of steering MDC to greater heights. Just two days of filling the high profile seat at MDC, Badlisham was approached by Insights@Mastic for his views on the country's IT industry. Besides putting his viewpoint across, he also reiterated MDC's roles and contributions in helping to shape the industry and also touched on the corporation's key challenges and future plans. Here's the excerpt of our e-mail interview with Badlisham.

## What is your assessment of the IT industry in Malaysia?

Before the MSC, the Malaysian ICT scenario was more vendor-driven with imported hardware and software. There was little or no software development. But today we can say that we have developed a multi billion ringgit ICT industry mainly with home grown talents and solutions. The MSC has also seen the creation of about 40,000 new jobs. Malaysian solutions are not only used locally but are exported to many countries. Global companies are also outsourcing their ICT requirements to Malaysian companies in many areas including software development, animation, etc. With practically no significant value-added ICT industry before the MSC's launch, today we have over 3,400 ICT companies, out of which more than 1,486 are MSC status companies. In 2004, Malaysia's ICT sector grew by 8.3% greater than the country's overall GDP growth of 7.2%. In 2004 too, MSC status companies attained revenue of RM7.21 billion. Out of this, export of ICT products and services amounted to RM1.57 billion. We have the MESDAQ which is the exchange for technology-based companies. There are now 46 MSC-status companies listed on MESDAQ, and they represent about almost half of the MESDAQ market capitalisation. This of course was non-existent before the MSC.

## How has the MDC helped shape the IT industry in Malaysia?

Besides facilitating the development of Malaysia's national ICT initiatives, MDC expedites the entry of investors into the MSC. MDC is also empowered to grant MSC Status to companies that operate in the MSC. MDC also facilitates various MSC Flagship programmes such as nurturing Malaysian ICT SMEs, attracting

ICT investments into the country as well as marketing ICT solutions, products and services for exports. The MSC brand is quite well known throughout the world and this has put Malaysia on the world map of ICT. The most significant is that Malaysia has been identified as one of the world's most attractive locations for outsourcing and shared services. We are in the top three in a number of relevant surveys. As highlighted by reports such as the AT Kearney 2004 and the Deloitte Paper 2005, MSC is one of the many factors that make Malaysia more attractive to foreign investors. Malaysia via the MDC and PIKOM has won the bid to host the prestigious World Congress in IT 2008 dubbed as the "Olympics of IT". This event will further help to boost the MSC brand globally. The MSC has been instrumental in spurring innovation in the ICT sector. Through schemes such as the MGS Grant scheme, many innovative products have come out from the MSC. The number of patents and IP has been quite significant. To date 475 IPs have been produced.

## What are the most significant achievements of the MSC?

The MSC Phase 1 (1996-2003) was highly successful and has surpassed the milestones set out for it in the first phase. MSC has now been rolled out to two other states in Malaysia such as the Penang Cybercity and the Kulim High Tech Park. The plan is to roll the MSC out to the whole country in 2010.

## What are the problems and challenges facing the Malaysian IT industry and in particular, the MSC?

Challenges include business competition from other hubs regionally and globally. The MSC has to compete with other IT hubs including those in Asia and Eastern Europe. To be globally competitive and for the MSC to meet the expectations of multinational companies, it is always enhancing its services and facilities. To achieve this end, we are undertaking development plans to ensure that Malaysia has the right human resource skills to attract these companies. The issue of the digital divide is also another challenge that the MSC needs to place more emphasis on.

## What are the future plans of MDC and where is the MSC headed?

The first seven years of the MSC were focused on developing the foundation of a viable ICT industry and a platform for a socio-economic transformation in Malaysia through ICT. The second stage (2004-2010) of its development or Next Leap will place greater emphasis on ICT as an enabler of a better quality of life – access to better education, healthcare and social opportunities without marginalising anyone. The MSC will begin its roll-out to the rest of Malaysia during the Next Leap with the setting up of several MSC cyber cities and cyber centres throughout Malaysia. The flagship applications, the vehicles designed to address the issue of the digital divide will be enhanced while new flagships will be introduced to increase national competitiveness and value-added services. On the international business front, by 2010, the MSC aims to attract 250 global companies comprising both local and foreign multinationals. We also aim to nurture our local Malaysian companies to become world-class players over time. The final milestone of the Next Leap is to ensure that the MSC is linked with leading global smart communities for mutually beneficial social and economic gains. [M](#)

# MIMOS Enhances Lifelong Learning Through MyGfL

**The Malaysian Grid for Learning or in short, MyGfL has been created to help Malaysians of all walks of life cutting across all age groups to cultivate a lifelong learning culture through the use of ICT.**

Picture this: a *mak cik* in a kampung is sitting in front of a computer. The computer is alien to her. She is coaxed to hold the mouse and use it to click on instructions that appear on the screen. She struggles with it. Then, she gives up. But her friends who are there at the community centre who have gathered to learn to sew traditional garments like *baju kurung* and *baju Melayu* using instructions given via the computer have overcome all odds and learnt how to use the computer and acquired sewing skill at the same time. The *mak cik* returns and spurred by the success of her friends, she too, at her own pace, is finally able to use the computer and learn how to sew.

This story was related by MIMOS Berhad Researcher (e-Learning Technology Programme), Azmi Mansur, who is one of the pioneering team members responsible for the development of MyGfL. It was conceptualised to promote and support lifelong learning agenda in Malaysia. Its beginning can be traced to March 1999 when the National Information Technology Council (NITC) mooted the concept of cultivating a lifelong learning culture among Malaysians through the use of ICT. The conceptual framework which is in line with the country's Vision 2020 of developing Malaysia into a knowledge-based economy was endorsed in 2002. Various ICT-related organisations including MIMOS were roped in to undertake the project. Research and development (R&D) work at MIMOS kicked off in 2003 and by September 2004, the MyGfL portal (<http://www.mygfl.net.my>) was ready for the public to access.

"MIMOS develops the MyGfL platform and at the same time helps stimulate the local content industry. We rope in e-Learning players to participate in the learning grid which is a portal that serves as a one-stop-centre for online learning content, tools and

services to support "cradle-to-grave" learning agenda. MIMOS takes on the non-formal concept of e-Learning targeted to a wide range of learners cutting across all age groups: children, teenagers, students at higher education level and adults," Azmi says.

Persons with or without ICT knowledge will be interested to take on e-Learning if a suitable learning platform and relevant content are made available to them. Even those in the rural community in the country can be guided to use ICT to improve their livelihood by acquiring new skills through e-Learning. Based on this premise, Azmi says, MIMOS launched a pilot programme in April 2005 for the rural community focusing on skill-based learning and basic ICT. One of the skill-based learning programmes is the online training on tailoring and



(From left) Norhaizan, Amru and Azmi.

sewing of traditional garments which MIMOS introduced with the co-operation of the Department of Community Development (KEMAS) under the Ministry of Rural and Regional Development. KEMAS has been conducting various skill-based classes and workshops for the rural community held at its centers nationwide. Online tailoring and sewing workshops conducted as part of the MyGfL pilot project were held at the rural community centre called Medan Info Desa (MID) in Kampung Sungai Gulang-Gulang, Tanjung Karang, Selangor and also at Pusat Kegiatan KEMAS in Sri Manjung, Perak. Each participant was equipped with a sewing machine and a computer with Internet connection. Classes were facilitated by KEMAS trainers however participants were left to acquire the skills at their own pace using the learning tools available via the MyGfL.

"We observed some participants have no idea on how to handle a mouse, and their hands were shaking as we guided them. Despite the apparent lack of computer literacy, they were still very much interested in the



MyGfL promotes and supports lifelong learning agenda in Malaysia.

programme and were willing to learn the skills due to the relevant content," recalled Azmi.

Subsequent pilot programmes were conducted for hearing impaired children and their families where they learnt sign language and engaged in storytelling while programmes for youth focused on language and ICT skills and entrepreneurship.

Crucial to the success of MyGfL are three components namely content, technology and standards. According to Norhaizan Mat Talha, also a researcher with MIMOS, MyGfL content is either developed in-house, bought off the shelves, aggregated, syndicated, outsourced or as a result of collaboration with content partners. MyGfL publishes the content either through metadata records or by hosting the content at its repository. A metadata record describes and indexes the educational resources using a set of data elements and controlled vocabulary to ensure uniformity. "In this way, a user will have information about the content even before opening the content," says Norhaizan adding that MyGfL currently has some 1,385 contents of which 72% are in the English language while 28% in Bahasa Malaysia. Educational resources come in the form of Web Resources such as web pages and files that can be viewed or downloaded through Internet browser (56%) and Learning Objects which have instructional content that promotes the achievement of learning outcome and performs practice and feedback to acquire mastery (44%). Some of the local content providers include Dewan Bahasa dan Pustaka offering among others stories for children and e-Comics as well as local publishing house Karangkrak. Foreign contents are varied ranging from painting tips for children to law, science, mathematic, research and e-Homemakers. Up to December 2005, MyGfL has 15,086 registered members with monthly hits of nearly 50,000.

Integrated within the MyGfL portal is the learning support system that promotes collaborative learning among learners through the use of online discussion, forum, chat tools, web-based email, online bookmarks and online notes. Other tools and services include a Metadata Management System (MMS) which

facilitates the metadata tagging process that conforms to the international standards of Dublin Core and SCORM 1.2. The MyGfL portal, learning support system and the various tools and services are all part of the Integrating Platform within the MyGfL framework developed by MIMOS, and one of the team members who created the platform is MIMOS researcher Amru Yusrin. He says content providers can use the MMS on condition that they share their records for use in MyGfL. MIMOS has applied to patent the MMS in 2004.

In keeping up with users who are mobile and always on the go, MyGfL can now be accessed not only using personal computers or laptops, but also PDA's or Pocket PC's. The mobile version of the MyGfL portal is known as 'MyGfL Mini' (<http://www.mygfl.net.my/mini>) accessible via the Internet on mobile device, either through WiFi, 3G, GPRS, or Bluetooth. Some of the applications in MyGfL Mini include Search, Chat, Email, e-Notes, Bookmarks and user Profile. Currently, only PDA's or Pocket PC's running on Windows Mobile 5 and Windows Mobile 2003 have been tested to work with MyGfL Mini. Tests using other devices are still in progress.

In terms of standards for e-Learning content and systems development, MyGfL has guidelines on Web Resources, Learning Objects and e-Learning Systems to ensure the quality of content, tools and services provided are met based on certain practices and principles of e-Learning. The standards also aim to guide MyGfL content providers to conform to a set of standards and guidelines for content development, as currently there is no single point of reference to all relevant e-Learning standards in Malaysia.

MyGfL as an initiative is planned to be officially launched this year. Subsequently, full-scale nationwide rollout of MyGfL will help accelerate the growth of knowledge-society (k-Society) in which it is envisioned that every Malaysian whether in urban or rural areas will use ICT for lifelong learning. M

**The sky is the limit at the Multimedia Super Corridor's Virtual Reality Centre (VRC). As part of the MSC's Creative Applications and Development Centre, the VRC is a conducive place where creativity can be compelled to spark at its brightest.**

# Centre of Excellence for Integrating Creativity with Technology

The demand for creative content in the country and worldwide is high. Everyone from filmgoers to Internet users, educationists, students and professionals will generate this demand for content. More and more companies are already involved in a wide range of content creation activities to meet demand. Recognising this, the Multimedia Super Corridor (MSC) spearheaded by Government-owned corporation, Multimedia Development Corporation (MDC), is focussing on this high growth area and is continuously strengthening its Creative Multimedia Cluster. Among the major initiatives for this cluster is the establishment of the MSC Creative Digital Content Hub. Within this hub, a centre for collaborative research and development (R&D) work between both the public and private sectors has been set up. Called the Creative Applications and Development Centre (CAD-C), it champions the Malaysian Government's initiative to boost the development of digital multimedia content in the country. CAD-C serves as the platform where bright minds from the private and public sectors can meet, and have their ideas fostered and taken to the limits through collaborative creative research. It is where creativity and technology will fuse to create a cutting-edge environment for optimisation of design, visualisation and interactive elements of creative applications.

CAD-C has world-class facilities that can service multi-application requirements across industries. One of the facilities is the state-of-the-art Virtual Reality Centre (VRC) offering an environment where computer graphics and alphanumeric elements can be integrated to allow its users better comprehension of engineering design, simulation studies, complex modelling and a host of other scientific, educational and entertainment related applications. It provides the capability for high-end display, projections and simulation facilities for a variety of applications using the latest 3D and other interactive technologies.

Examples of projects using VRC are: virtual exploration of Mars and expeditions to the Arctic and Antarctica; town planning; disaster planning and management for mitigation against earthquakes, floods and fire; virtual surgery practice for doctors; reconstruction of ancient cities and digitisation of artefacts; and teaching content for subjects like chemistry, physics, biology and history.

The VRC is also utilised by the MDC to bring MSC flagship applications comprising Smart Schools, Telehealth, e-Business, Smart Card Technology, e-Government, R&D clusters and technopreneurship to their next level of development. In addition, it helps optimise design, visualisation and interactive capabilities of key industries such as energy, Government and defence, sciences and

education, manufacturing, media and entertainment in their pursuit of innovation.

The VRC is equipped with the first curved wall Virtual Reality Centre in ASEAN, and the first Visualisation Area Network (VAN) in the Asia-Pacific region. The VAN facility provides networking capabilities with other similar facilities worldwide for collaborative research. Utilising the highly scaleable architecture of the Onyx 3800, CAD-C offers significant advantages to organisations in many sectors that plan to improve their processes and competitive advantage through the use of the technology. It is an integrated rendering and visualisation facility with full interaction capabilities with other reality centres or with other visualisation facilities. Its features include a 12-ft radius cylindrical screen and three DLP projectors. It provides high resolution, 3D visualisation with stereo capabilities. The High Performance Computing associated with the Onyx platform is capable of handling complex 3D computer animation images, and is well suited for parallel volume rendering and texture intensive scenes.

Having knowledge and skill in Virtual Reality has many advantages such as it gives greater insight into and understanding of complex data including geophysical strata, airflow, and complex numerical data. It also helps in making better decisions in order to stay ahead of competitors. Virtual Reality can help groups and individuals rapidly understand all aspects of a problem for making key decisions such as where to place an oil well, military operations planning, and car design decisions. Virtual Reality offers superior outcomes in the form of creating the required special effects or animations, or capturing the full detail of a medical analysis, for example. Some projects carried out at the VRC include the following:

- 2005**
- Medical Project**  
Virtual Autopsy – by Info Valley Sdn Bhd and SGI
- Urban Simulation/Build Environment Project**  
Eco-house – by International Islamic University  
Disaster, Monitoring and Command/Control Management – by MMU
- Undergraduate Project**  
Final Year Projects by MMU  
9 planets  
Immersive Physic Simulation
- 2003-2004**
- Medical Project**  
Virtual Maxillofacial reconstruction – by University Malaya  
Cardiac Mechanics using the Fibre-Fluid Model: A Three-Dimensional Computer Model of the Human Heart for Studying Cardiac Dynamics – by University Malaya
- Historical Project**  
Ancient Melaka – by Decimal Point Sdn Bhd and UKM
- Urban Simulation/Build Environment Project**  
Putrajaya – by FSBM I-design  
Low Cost housing project – by UPM



High Performance Computing.

Requiring special mentions are three projects namely Virtual Autopsy, Eco-house and Disaster, Monitoring and Command/Control Management, all of which are projects that began in 2005 and are now at different stages of progress.

The Virtual Autopsy project undertaken by Info Valley Sdn Bhd and SGI last year with MDC as the project rollout agency is set to provide a new and revolutionary technology tool to Forensic Pathologists and others with interest. The project involves the establishment of new Standard Operating Procedures (SOPs) with the introduction of an informatics layer in the form of Virtual Autopsy within this established medical sub-sector. A prototype is being developed to support this technology in the form of end-software solution specific to forensic pathology. This software solution will carry a strong Made-in-Malaysia Brand with the MSC as the development hub. The Virtual Autopsy tool will be a much more precise, targeted and 'elegant' method of performing autopsy. It will be an autopsy without a scalpel! The rapid application of developing radiological methods may lead to new horizons in forensic documentation and intravital as well as post-mortem examination.

The Eco-house study project by the International Islamic University involves the simulation of an eco-house in Malaysia by integrating an environmental performance analysis with a virtual walkthrough. The study is carried out with the objectives of, among others, analysing the impact of selected features and selected spaces as well as the impact in terms of energy performance of the proposed eco-house design. The other project is the Disaster, Monitoring and Command/Control Management undertaken by the Multimedia University. It caters to the needs of the Malaysian Royal Police for Crisis/Catastrophe/Disaster Management (flood, fire, crime and health) as well as helps in the national Counter Terrorism project (kidnapping, hijacking, electronic warfare and explosive). A system called Crisis Management, Counter Terrorist (CMCT) was designed under this project. It is an advanced visualisation system created for use in a command and control centre. The system which more specifically addresses Police activities in Flood Crisis Management and Counter-Terrorism Control, utilises five main technologies namely 3D Data; 2D Geographical Information System /Drawings; Satellite Telemetry; Audio/Video/Communication; and Statistics/Database/Analysis.

The above three projects are indicative of some of the high-technology projects being carried out at the VRC. Here, the sky is indeed the limit for those who want to explore their technological capability and creativity to the fullest. For more information, access <http://cmc.msc.com.my>



Fadilah Baharin.

# Standards in ICT Industry

**While the development of standards in most industries is driven by the public sector, the scenario is different in ICT. By its fast moving nature, standards development in ICT is pushed by the industry itself.**

Increasing the availability of expertise, creating a pool of local technology entrepreneurs, producing high quality products and services and attracting world-class companies to Malaysia are all part of efforts to spur growth in strategic areas of ICT. Other crucial efforts involve the development and the adoption of world-class standards for the Malaysian ICT industry which has seen a healthy growth. The industry's domestic billings grew by 10% to RM7.9 billion in 2003 and a further 15% to RM9.1 billion in 2004 (source *Infocredit D&B Report*).

While the establishment of the Multimedia Super Corridor (MSC) in 1996 has since then propelled Malaysia into a thriving and dynamic ICT hub hosting more than 1,200 MSC-status multinationals, foreign-owned and home grown Malaysian companies, the promotion of standards for utilisation in the ICT industry falls under the purview of the Department of Standards Malaysia (DSM), Ministry of Science, Technology and Innovation.

DSM Director of Standards, Fadilah Baharin says standards development in ICT is very industry-driven unlike most other industries. "By nature, ICT is a very fast moving industry therefore its standards are pushed by the industry itself. DSM supports the development of national standards in the ICT industry through providing the standards development infrastructure facility where experts from relevant ICT areas coming from public and private sectors as well as NGOs participate through the national technical standards committee namely the "Industry Standards Committee (ISC) on IT". The good efforts by this ISC is further supported by the Standards Writing Organisation, the Malaysian Technical Forum Sdn Bhd (MTFSB), that works closely with the Malaysian Communications and Multimedia Commission (MCMC). Where relevant, the MCMC, which is also a regulatory body, adopts the standards developed by MTFSB through DSM's official system of standards development," she says.

Currently there are almost 4,000 Malaysian Standards (MS) developed and more than 430 of the MS are related to the ICT industry. The MS in this industry cover various fields ranging from office equipment, audio and video engineering to IT security.

"With the ICT industry driving its own rate of development for MS, it creates a win-win situation for DSM which has the

task of achieving the national target of developing 6,000 market-relevant MS by 2010, which will support the country's needs to achieve its vision of becoming a developed nation by 2020," says Fadilah adding that in order to stay relevant, DSM must support the policy of the Government and at the same time helps the industry to prioritise. There are currently two priorities. The first, according to Fadilah, involves IT security. "R&D on IT security must be strong. All kinds of research work are happening now and the research findings will provide the input for standards specifications," she says. The second priority is developing e-Community as part of the Government's Bridging the Digital Divide programme such as the Malaysian Grid for Learning (MyGfL) which is aimed at bringing ICT to every level of society. In efforts to create industry's awareness of such priorities, DSM organises talks, meetings and seminars. One of the most recent seminars organised by DSM was "Achieving Total Security through the use of Information Security Standards" held in conjunction with the 31st Working Group Meeting of the International Organisation for Standardisation/International Electro-technical Commission Joint Technical Committee 1/Sub Committee 27 (ISO/IEC JTC1/SC27) on IT Security Techniques. Key ICT players in both the public and private sectors attended the seminar which saw international speakers with relevant expertise giving talks and presentations related to information security standards including the newly published ISO/IEC 27001:2005 Standard for Information Security Management System (ISMS) and the ISO/IEC 17799 Information Technology – Security Techniques – Code of Practice for Information Security Management.

Fadilah says the DSM places high hopes on ICT companies to make use of existing standards when developing products and services. "The initiative falls on the companies to follow and conform to standards so as to achieve zero defect. Only by doing so can companies claim to offer products of credible status. When companies 'self-declare' that they conform to certain standards, who is there to certify that their claim is correct? Companies must have the discipline to meet their own claims and do the necessary to achieve standards. Be true to what you claim to be," she stresses. The advantages for ICT companies to comply with standards are many and these include assurance of safety, reliability and quality to consumers which in return will ensure the companies own sustainability in the market. <sup>M</sup>

# ICT Policy Division

Following the reshuffle of the Malaysian Cabinet on March 27 2004, the then Ministry of Science, Technology and Environment was revamped resulting in the formation of the Ministry of Science, Technology and Innovation (MOSTI). The revamp saw the transfer of the responsibility on environment matters to the Ministry of Natural Resources and Environment and the entrusting of responsibilities related to ICT policy and innovation to MOSTI.

The restructuring has resulted in the transfer of the role in national ICT policy formulation, planning, co-ordination and content development from the then Ministry of Energy, Communications and Multimedia (MECM) to MOSTI. ICT infrastructure development and regulation of the telecommunications and broadcasting industry remained with MECM, which was then renamed the Ministry of Energy, Water and Communications.

## ICT Policy Functions

In recognition of the importance of having more effective national ICT policy planning and co-ordination, the ICT Policy Division was established under MOSTI to formulate ICT strategies, as well as to coordinate and monitor their implementation in the country.

## Vision

Entrusted with the responsibility to harness the full potential of ICT for social and economic development of the country, the ICT Policy Division has set its vision to be:

*The focal point for national ICT policy formulation towards achieving social well-being and wealth creation for sustainable development.*

## Mission

In order to accomplish the stated vision, the following mission statement was formulated:

*To create a conducive environment via the development of ICT strategies towards achieving a knowledge society as well as a competitive and innovative ICT industry thereby enhancing Malaysia's standing internationally.*

## Roles and Functions

In order to streamline the needs to accomplish the nation's ICT agenda, the main roles of the ICT Policy Division are:

- To formulate, monitor and coordinate national ICT policies and strategies
- To monitor and coordinate implementation of ICT security and guidelines amongst the Critical National Information Infrastructure
- To plan for development including capacity building for the ICT industry
- To coordinate and monitor ICT development programmes based on established ICT indicators
- To encourage research and development in ICT and coordinate commercialisation efforts of ICT products and services
- To plan and coordinate programmes to bridge digital divide among identified target groups
- To coordinate the development and adoption of new ICT applications
- To coordinate the development of local content and the local content industry
- To plan and coordinate ICT promotion and acculturation programmes

towards building a knowledge-based society

- To develop databases of statistics and indicators on the national ICT development
- To serve as Secretariat for the National IT Council (NITC).

## Focus Areas

ICT has been identified as one of the priority areas for development under the Ninth Malaysia Plan. As such one of the main focus areas of the Division is the development of the National Strategic ICT Roadmap. This ICT Roadmap would identify the development of distinctive ICT technologies for Malaysia and develop strategies to make these technologies an important driver of national economic growth. Apart from the identification of technology focus areas, emphasis will also be given to two other aspects, namely the building of distinctive ICT talent pool and capabilities as well as acceleration of commercialisation and growth, especially via collaboration between industry and research.

The formulation of the National Information Security Framework is required to create a trusted environment to encourage electronic transacting among citizens, businesses and the Government. It also aims to protect critical National Information Infrastructure.

Development of local content and the content industry is another key agenda of the Division. The lack of local content has also contributed to the digital divide especially for communities who can only read and write in Bahasa Malaysia. A three-pronged approach has been identified to generate more local content which are:

- To create new local content.
- To digitise existing relevant content.
- To implement the use of translation engines to enable online translation of English-language content.

Public-private cooperation is needed to develop the local content industry. This includes the setting-up of multimedia content development laboratories and training of potential developers.

To foster the use and knowledge of ICT, specific activities have been developed under the Promotion and Acculturation programme. This includes programmes aimed towards providing more equitable digital opportunities for all.

In discharging its responsibilities, this Division works closely with other ICT bodies from the Government and private agencies, including the Multimedia Development Corporation (MDC), the Malaysian Institute of Microelectronic Systems (MIMOS), the National Information Security Response Centre (NISER) and the Malaysian Network Information Centre (MyNIC).

The Division is also the Secretariat to the National Information Technology Council (NITC), where functions include the preparation of proposals encompassing important strategic ICT topics to be discussed and monitoring of the implementation of policy decisions made by the NITC. <sup>M</sup>

Source: ICT Policy Division, MOSTI

# Leading the Way in Video Conferencing



It is not the kind of achievement that hits the front pages of newspapers. There is no excited buzz unlike when the spotlight falls on an outstanding film star or a top model or even an exceptional sports achiever like world squash champion Nicol David. Nevertheless, the development of the world's first multipoint-to-multipoint (M2M) video conferencing system within the more complete Multimedia Conferencing System (MCS) in Malaysia is an achievement that every Malaysian should be proud of. The MCS is set to be one of the best communication tools in the world today. It is an achievement that has quietly spoken volumes of the capability of Malaysians in the ICT industry. Malaysians can certainly take pride in local researcher/professor Dr Sureswaran Ramadass and a local Multimedia Super Corridor-status company, MLABS Systems Berhad (MLABS) leading the way and competing with ICT giants elsewhere in the world.

Dr Sureswaran is the Chairman and Non-Executive Director of MLABS. He is also an Associate Professor of the School of Computer Sciences, Universiti Sains Malaysia (USM) as well as the Director of the university's National Advanced IPv6 Centre of Excellence (NAv6 Centre). The company's flagship software product, the MCS, has propelled the company into the forefront of video conferencing technology and has won the company several awards including the Computer and Multimedia Industry of Malaysia (PIKOM) award for Best IT Product of the Year (1999), the Merit Award at the Asia Pacific Multimedia Super Corridor Information Technology and

**The world's first multipoint-to-multipoint video conferencing system is developed in Malaysia and by Malaysians. This article points the spotlight to local home grown researcher/professor Dr Sureswaran Ramadass who heads the team of local researchers and technology developers to develop the system that has made an impact in the global ICT playing field.**

Telecommunications (APMITTA) Awards (2000), Gold Award from the Ministry of Science, Technology and Environment (2003), IPTA R&D Expo 2005 Gold Award and winner of the Special Category for Joint Venture from the Ministry of Higher Education. Besides winning clients in both the public and private sectors in Malaysia such as TM Net Sdn Bhd, SIRIM Berhad, Malaysia Satellite Services (MEASAT), Penang State Government, Malaysia Meteorological Services and several universities, MLABS also has international clients such as Microsoft, City Council of Los Angeles, SDK Japan and others across Asia, USA, the Middle East and the Pacific region.

In a live interview using the MCS, Dr Sureswaran who speaks from his office in USM in Penang and "chairs" the virtual conference with participants in the MLABS meeting room in Technology Park Malaysia, Bukit Jalil, Kuala Lumpur, says the development of the

MCS software actually started as far back as 1993 as part of his PhD thesis research done in USM and it initially took more than five years and about RM4 million to develop. Initial funding came through the Ministry of Science, Technology and Innovation (MOSTI) Intensification of Research in Priority Areas (IRPA) fund. Further development of the MCS led to the formation of a company called Profound Blue Sdn Bhd on July 28, 1997. The company later changed its name to Multimedia Research Lab Sdn Bhd (MSB), and it was under this company that the core product of the MCS was first commercialised. MSB subsequently became a wholly-owned subsidiary company of MLABS which became the first company-university joint-venture in the country to be listed on the Malaysian Exchange of Securities Dealing and Automated Quotation Berhad (MESDAQ) Market of Bursa Malaysia Berhad. MLABS is also a recipient of MOSTI's Multimedia Super Corridor Grant Scheme (MGS) and the Industrial Grant Scheme (IGS) award given to companies with proven research and development (R&D) record and reputation for reliably delivering research-based products. Dr Sureswaran says over a period of more than

ten years, the total R&D cost comes to the tune of about RM18 million.

Dr Sureswaran emphasises that the MCS particularly the version 5 (MCSv5) is not just a video conferencing solution. It is an integration of various mediums of communication bundled together i.e. audio, video, text, images and multiple data types transported together in a single carrier. MCS is essentially an Internet Protocol-based M2M multimedia videoconferencing system which can be applied by tapping onto existing corporate network or the country's Internet infrastructure to build virtual meeting places as effective as face-to-face meetings. It allows up to 60 users per Enterprise Server and up to 1,000 users per Application Service Providers (ASP) server. The number of servers is scalable which means a conference can have an unlimited number of participants by simply increasing the number of servers. The Enterprise Server not only facilitates video conferencing, it also allows the user to conduct live presentations using MCS Document Conferencing that supports various formats such as Microsoft Office Documents (Excel, PowerPoint, etc), Image format and others; as well as run chat sessions, conduct live video streaming and view presentations via screen or video.

The most powerful feature of the MCS is its ability to communicate not only point to point but also point to multipoint, and M2M. The conventional videoconferencing systems enable only point to point or point to multipoint link-ups. MCS is the first of its kind to offer virtually unlimited M2M video conferencing for notebook, desktop, boardroom and wireless users at relatively low system procurement and usage costs. Its attractiveness in the global marketplace includes features such as no call costs, low additional infrastructure needs, open-system hardware requirements and wireless capability.

MLABS is now about to complete and market version 6 of the MCS. This version will have new and improved features such as better quality of video playback and improved audio quality. Customers who have purchased MCSv5 can get a free upgrade to MCSv6 within one year. MLABS is offering a promotional package comprising the entire board room system at RM 49,000 with a 5-user enterprise server with the release of MCSv6 scheduled this month.

The unique concept and technology behind MCS are without doubt the prized assets of MLABS. It has therefore taken steps to protect its intellectual property rights by registering two trademarks namely Quickmeeting and MLABS logo (both for computer operating programmes and computer software) with the Intellectual Property Corporation of Malaysia. It has also filed two patent applications, one each in Malaysia and the US for its M2M multimedia conferencing system incorporating the

distributed entity environment and the unique method of floor control. The copyright to the MCSv5 is held by MSB. In terms of standards, Dr Sureswaran who sits on the Multimedia Standards Committee says, "Creating standards is very much in MLABS's fundamental R&D plans. Everyone is welcome to give ideas and build on them. We will develop the local standards first, based on an open standard platform generated by the International Engineering Task Force (IETF). The IETF can take and adopt locally developed standards and then make them global standards."

"The motivating factor is the people driving the R&D. MLABS is an example of privately owned company with close ties with the university. We have consultancy agreement with USM and we give scholarships to students who are also given the opportunity to be involved in our R&D work. We have both direct and indirect funding arrangements with the university. USM was our first customer and it has been very helpful right from the beginning," he says, confirming that universities can find partners to embark on commercial concerns. In the case of MLABS and USM, it has been a win-win partnership all the way. [M](#)



MOU signing between Multimedia Research Lab Sdn Bhd and Microsoft Malaysia (M) Sdn Bhd on November 30, 2005. From left are Microsoft Malaysia (M) Sdn Bhd representatives, Dr. Dzaharuddin Mansor and Mr Butt Wai Choon with Dr. Sureswaran Ramadass and Multimedia Research Lab Chief Executive Officer, En. Khairil Amuar Aziz.



Dr Sureswaran Ramadass (right) receiving two gold medals for Best Joint Venture and Best IT Product (Video Conferencing) from Minister of Higher Education, YB Dato' Dr. Hj. Shafie b. Hj. Mohd Salleh.

# Bio-hash Technology: Innovative Solution for Identity Management and Information Security

**Enterprising and innovative Malaysians create award-winning technology that meets rigorous requirements for protection of user identities and transaction data.**

Electronic identities can be stolen, and even fingerprints can be forged. The world has come to a stage where it is now of paramount importance to protect one's electronic identity, and to authenticate and secure transaction data. Conventional identity verification very often involves high implementation and operational overheads. Constant monitoring by the service provider is also usually required to prevent lapses which inconvenience and jeopardise large numbers of users. This less than satisfactory situation motivated the development of the bio-hash technology by Alwyn Goh and David Ngo Chek Ling, both of whom are experienced and well-published researchers. Bio-hashing allows for face and biometric verification with enhanced security, versatility, effectiveness and efficiency; in comparison to conventional biometric methods. Under the aegis of Corentix Technologies Sdn Bhd; and together with colleagues Tan Shan Hui, Hoe Kok Meng and Andrew Teoh Beng Jin; this enterprising and innovative company currently offers face and biometric solutions and engineering toolkits. Ngo and Teoh are also academics at Multimedia University (MMU); where Ngo is an associate professor, dean and chairman of the Centre for Biometrics & Bioinformatics.



(Seated) Alwyn Goh. (Standing from left) Hoe Kok Meng and Tan Shan Hui.

Research and Development Project at the Multimedia Super Corridor (MSC) Asia-Pacific ICT Awards (APICTA) 2005; and an ITEX gold medal from the Malaysian Invention & Design Society (MINDS).

Goh and Ngo, who met while lecturing at Universiti Sains Malaysia (USM), respectively serve as chief executive and chief technologist of the company. Corentix staff have to their combined credit more than 100 publications in international journals and conferences. Goh specialises in cryptography, information security, client-server systems and knowledge engineering; while Ngo's expertise is in biometrics, human-computer interfaces, computer aesthetics and knowledge management. With funding by Mavcap Berhad under the seed capital investment scheme, the company has been able to enhance and extend the bio-hash technology, which was originally conceived by Goh as a cryptographic solution to a biometrics problem. A patent for the bio-hash algorithm has been filed in Malaysia, and will be filed in other jurisdictions as business opportunities arise.

"The bio-hash technology is entirely Malaysian, from the point of conception. Our solutions and toolkits are highly Malaysian in terms of technological content," says Goh.

"The ultimate form of trustworthiness is to see a person face-to-face. The bio-hash technology essentially links this well-regarded physical means of identification with an equivalent electronic means. It is secure from both user and process viewpoints. The

technology integrates face data captured via camera with cryptographic data derived from external objects i.e. passwords or smartcards. It offers strong security and privacy, which is something special in comparison to most other identity management technologies," adds Goh.

Bio-hashing technology is essentially an analogue-to-digital (A/D) transformation with zero knowledge (ZK) cryptographic characteristics. The basic concept is to integrate at least one biometric input (face or fingerprint) with at least one digital input (password or physical device), so as to generate a stable digital output useful for effective identity verification and/or cryptographic operations. The ZK aspect pertains to the irreversibility of the input/output (I/O) process, resulting in a high degree of protection for the inputs i.e. quasi-permanent biometric data which cannot be revoked or refreshed.

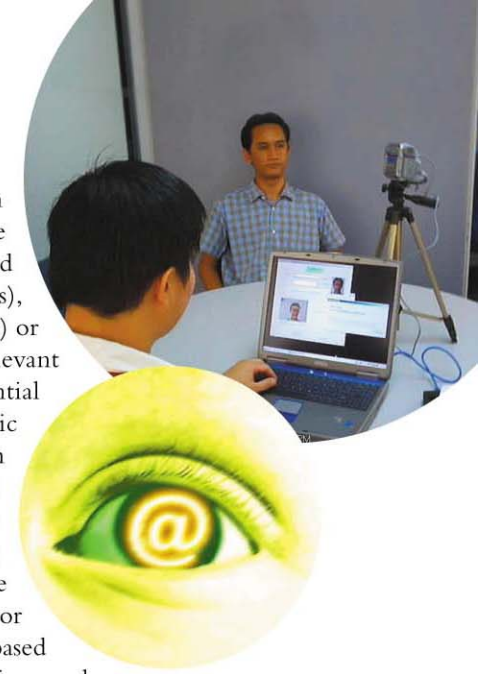
"Conventional biometrics tend to focus solely on recognition effectiveness. Bio-hashing was designed from the ground-up to address security-related issues i.e. identity theft, transaction fraud, data privacy and authentication. One of our strengths arises from the essentially cryptographic processing of biometric data, resulting in strong protection of biometric data from construction of the mathematical algorithm. The other main strength arises from the capability of this digitisation process to be robust in the analogue sense, so as to be able to handle minor biometric variations i.e. due to different lighting conditions. Bio-hashing is hence lenient for minor variations, but strict for major variations as would arise from an impersonation attempt," explains Goh.

Bio-hash identity verification can be applied in support of physical access management such, as at commercial and residential areas, and even high security places like airports and checkpoints. The

technology would also be useful in support of transactions at service counters i.e. related to banking and financial services (with passbooks), immigration (with passports and visas) or Government services (with relevant documentation). Other potential applications include electronic commerce (online banking with tokens or passwords); time and productivity management (clock-in/out with identification badges); self-service kiosks (ATM and airline operations involving tickets, passes or tags), and in fact any document-based scenario such as courier deliveries, and management documents which are highly valued or sensitive i.e. legal papers or medical records.

The basic operational model is simple: a one-time registration event, followed by multiple verifications events. A generic registration scenario requires a PC workstation, a biometric sensor i.e. camera (for face) or scanner (for fingerprint), and the relevant token interface ie optical scanner (for barcode) or magstripe/chipcard/RF reader, with a network connection optional due to the compactness and security of the bio-hash data. Generic verification requires all of the above, plus physical security hardware such as sensors (door open/close) and actuators (door lock/unlock). Most organisations are already equipped with these facilities, hence the modest additional investment required to take advantage of bio-hashing is very small. "The minimum would be a few hundred ringgit above the price of a digital camera, for sufficiently large-scale projects," says Goh, adding that there would be additional charges for consultancy and customisation services depending on the operational scenario and customer requirements.

Corentix is able to translate the low costs of local technology development into significant pricing advantages. As part of its development roadmap, the company is targeting small-to-medium enterprises (SMEs), as the potential in this market segment is enormous. It is relatively untapped due to the relatively high pricing of imported biometric solutions, which places them beyond the affordability of most SMEs. Worldwide, the market growth of biometrics and other security-related technologies has been on the rise, with year-on-year growth rates reaching approximately 50% in the last five years. Some of this has been the result of unfortunate events which necessitate higher security to protect people, physical assets and information. Corentix plans to bring to the global market face-based solutions and toolkits as well as other enhanced and specialised security products, all of which will have a very high level of Malaysian technology content. M



## A Reassessment of KRSTE.my Knowledge Domain Taxonomy

A discussion and re-evaluation of KRSTE.my Taxonomy took place on September 27, 2005 at Crown Princess Hotel in Kuala Lumpur. The one-day session was held to reassess KRSTE.my present Knowledge Taxonomy Structure and to update information in the domain and incorporate new ones according to the development of contents suitability and current requirements of KRSTE.my users. The step was also taken to further improve the present status of Knowledge Taxonomy.

A total of 80 participants from various agencies and departments under MOSTI, including other related agencies involved in the supply of information for KRSTE.my participated in the session.

Ongoing information development and addition during the contents development have contributed a total of 974 documents with unmatched keywords in the present taxonomy. In view of that, Knowledge Domain Taxonomy in KRSTE.my system requires a re-evaluation to overcome the problem.

The meeting also concluded that the development of a new knowledge domain on Information and Communication Technology (ICT) is required in order to accommodate the fast-growing pool of ICT knowledge and information.



*Discussion in progress.*

Knowledge Domain Technology has been continuously developed during the first phase of KRSTE.my system development through several meeting sessions and workshops, participated by six knowledge domain working groups namely, Science and Technology, Innovations, Oceanography, Biotechnology, Biodiversity and Environment and Sustainable Development.

## Explorer: Opportunities through Commercialisation of Emerging Technologies



Malaysian Science and Technology Information Centre (MASTIC) held a seminar on "Explorer" on November 25, 2005 at the Briefing Room, Level 6, MOSTI. "Explorer" is a service that supports research activities by identifying potential technology-enabled opportunities.

The Director of Explorer from SRI Consulting Business Intelligence, London, Dr. Nicholas R.S. Evans, Ph.D., who is responsible for the creation of "Explorer", presented his paper entitled Emerging Technologies – Nanobiotechnology and Biomaterials. The seminar focused on how "Explorer" is able to assist users by serving as an information resource that evaluates

business opportunities that can be developed from technology commercialisation. The evaluation process includes forecasting and monitoring next generation technologies, recognising the trend, understanding the issues and uncertainties as well as the implication of developing certain technology. Participants were also informed of products development and new marketing opportunities especially in the field of Nanobiotechnology and Biomaterial.

The seminar involving a total of 70 participations from various Government agencies, universities, research institutions and representatives of departments and divisions under MOSTI was a huge success.

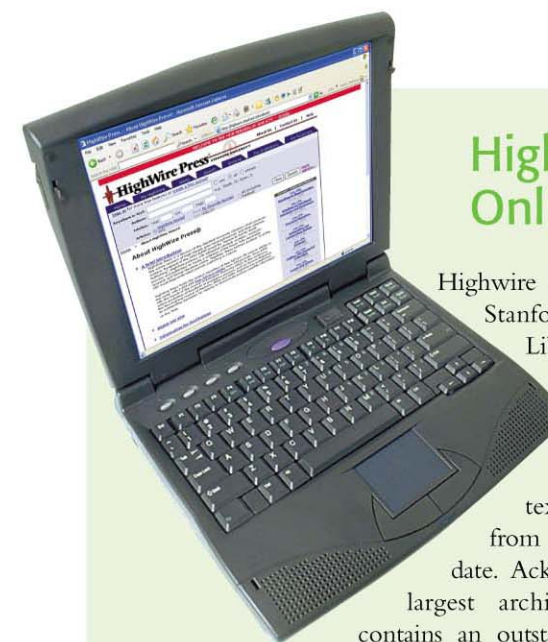
## MASTIC Implements Next Generation Technology in its Library

Scanning barcodes and lining up at checkout counters are the things of the past, now that Radio Frequency Identification (RFID) System is finally available here in Malaysia. The system is the fastest and easiest method to identify, locate and manage library materials. MASTIC takes pride in being the first organisation in Malaysia to administer such groundbreaking technology in its library. With the facility, MASTIC staff will have a more efficient working system while library patrons can expect a more convenient and hassle-free library transactions.

The cutting edge library technology developed by 3M comprises a range of state-of-the-art paraphernalia that can enhance productivity of staff and most importantly, the expectation of patrons for a hassle free check-in and checkout procedures. Three powerful components, the heart of the system – RFID Tag, Staff Workstation and Detection System – have already been utilised in MASTIC's library, commencing December 2005. RFID Tag is a small, rewriteable, 2,048 Kb (Kilobytes) memory chip that functions as a tag identifier as well as a focal storage point for information on various items. The self-adhesive chip is also capable of storing

security status, where library staff can accurately track the circulation of materials in the library. Staff Workstation consists of an RFID reader pad and software. This component facilitates the process of charging and discharging of items by librarians. As it is able to process multiple RFID tagged items simultaneously, the workstation can reduce workload, thus providing ample time for library staff to attend to patron's needs and queries. The next essential component is the Detection System, which serves as a security passage, comprising of two panels that form a corridor of protection. It also functions as an automatic alarm and patron counter. The panels are installed at the entrance and exit way of the library and are equipped with audible and visible alarm.

According to MASTIC's head librarian, Abdul Majid Hamid, MASTIC is foreseeing the possibilities of incorporating supplementary apparatus, namely the SelfCheck System and Digital Library Assistant in the RFID System in the near future to further optimise and sustain the efficiency of library management and services.



## Highwire Press: A Resource for Online Full-Text Science Articles

Highwire Press, a division of Stanford University Libraries, handles the management and development of an online repository of full-text science articles from January 1997 to date. Acknowledged as the largest archive on earth, it contains an outstanding number of 1,105,787 free full-text articles out of 2,910,089. The articles can be obtained free of charge from 237 sites. A total of 45 sites linked to the repository offer texts with free trial period while 783 sites require payment for each viewing.

The main web page has a user-friendly interface for easy navigation. Users can make use of the search engine provided to find any journal from various

disciplines ranging from psychology to pathology, by typing in the key word, author, citation, article or published date of the particular journal. Alternatively, users can browse through each site listed alphabetically to search for their journal of interest. Browsing of the journals can also be executed by using "Topic Map" – a special Java applet designed to help users navigate the topics on HighWire Press in a graphical form. Another facility is the mailing list where users can register via e-mail to receive notifications on any updates, such as new journal additions to the "Upcoming Journal" or new journal launching. This tool is the ultimate guide and reference for students, academicians and researchers who are seeking reliable information in varied aspects of their study and areas of research.

Currently you can access Highwire Press via <http://highwire.stanford.edu> or search via KRSTE.my under 'Scientific Publications' then search in 'Other Publications'.