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OCT 2015 | ISSUE 7 UNIMAS ICT MAGAZINE

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#keepit UY

#yesnaikpangkat

Perjalanan Menuju Puncak

#showmethemoney

Tracking your overtime and travel claims

#virtualmakeover

Revamp for better results: Improving rankings step by step



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DARI MEJA PENGARAH

السلام عليكم ورحمة الله وبركاته

Assalamualaikum... Salam Hormat dan Salam UNIMASku Sayang.

Syukur Alhamdulillah ke hadrat illahi kerana kita terus diberi kesempatan untuk bertemu lagi di dalam Tag-it edisi ke-7 ini. Banyak yang harus kita syukuri atas limpahan nikmat yang dikecapi sehingga kini.

Kita sudah berada di suku terakhir 2015. Banyak inisiatif ICT yang telah berjaya diurus dan sedang dilaksanakan sepanjang tahun ini antaranya yang utama adalah menaiktaraf infrastruktur rangkaian seluruh kampus, memperluaskan liputan wifi di kolej-kolej pelajar dan menaiktaraf server sistem aplikasi utama universiti.

Penaiktarafan infrastruktur dan infostruktur ICT ini sudah pasti akan memberi impak yang signifikan kepada pencapaian aspirasi universiti. Arus semasa Internet of Things (IoT) menjadikan aktiviti pengajaran-pembelajaran secara atas talian (MOOC, Blended Learning) dan aktiviti penyelidikan memerlukan infrastruktur ICT yang mantap, ketersediaan yang tinggi dan fleksibel.

Pada tahun ini juga ketampakan UNIMAS semakin meluas dengan peningkatan kedudukan Webometrics berbanding dengan universiti lain di Malaysia dan juga kedudukan di peringkat dunia.

Pelaksanaan inisiatif kualiti pengurusan keselamatan maklumat (Information Security Management System) juga berterusan dengan kejayaan mendapatkan semula pensijilan ISO27001 (ISMS) dari pihak SIRIM QAS International Sdn Berhad. Pelaksanaan ISMS di UNIMAS adalah bagi memastikan tindakan mengikut amalan terbaik dan mematuhi piawai kualiti keselamatan maklumat.

Sesungguhnya apa yang dicapai setakat ini merupakan kesinambungan sinergi semangat dan usaha gigih ahli pasukan bagi setiap projek berkenaan serta sokongan padu pengurusan universiti.

Teruskan... dan buat sehabis baik!

"The only way to do great work is to love what you do.."

- Steve Jobs



FROM THE EDITOR

"This is the lesson: never give in, never give in, never, never, never, never-in nothing, great or small, large or petty-never give in except to convictions of honour and good sense. Never yield to force; never yield to the apparently overwhelming might of the enemy."

- Winston Churchill

It was during his first visit to his old school – Harrow School, on the 29 October 1941; that Winston Churchill utter the famous "Never give in!" speech, whiched summed up the ethos of what Britain had done to survive the horrors of the Nazi onslaught during World War 2.

Winston Churchill's message is true for anyone facing a tough time. Encouraging one to press on, to keep doing what they are good at and to see things to the end, akin to; what we say today, "#keepitup".

The stresses of developing good applications that meet the expectations of its users takes years and it takes a dedicated group of people to stay the course and to see things to the end.

In the seventh issue of Tag-it, we talked to the teams developing the staff promotion system, those working on the financial claims systems and also to the team working on improving UNIMAS's official website. We asked them to pen out the ideas that lead to their success in producing systems that meet the expectations of their users or those that have hit targets set out for them by the management of the university.

Cheers!

Maclean Patrick

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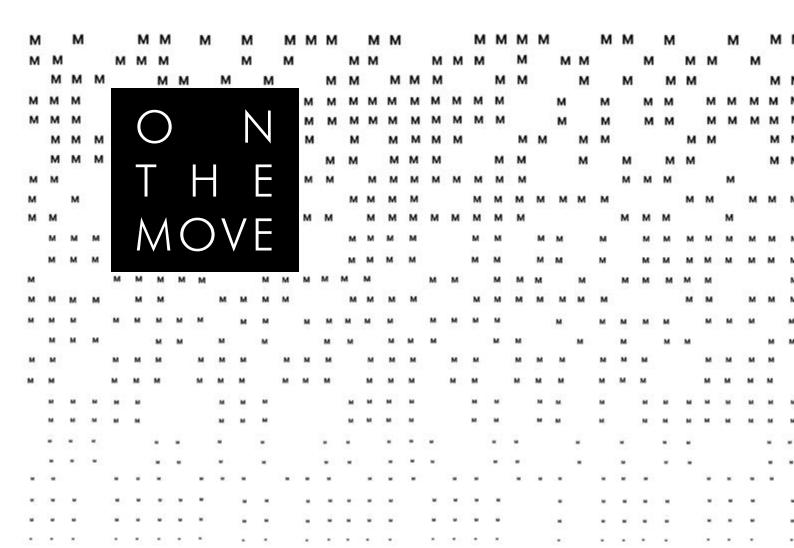
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Collaboration with IMEC

The International Malaysian Education Centre (IMEC) has been given access to UNIMAS's students management system. This would help IMEC to easily monitor the number of applicants to UNIMAS's courses as well as to gain statistics on the number of successful applicants and courses taken up. IMEC offers four UNIMAS postaraduate programmes at the UNIMAS Learning Centre in Peninsular Malaysia.

Amendments to the ICT Policy and DKICT

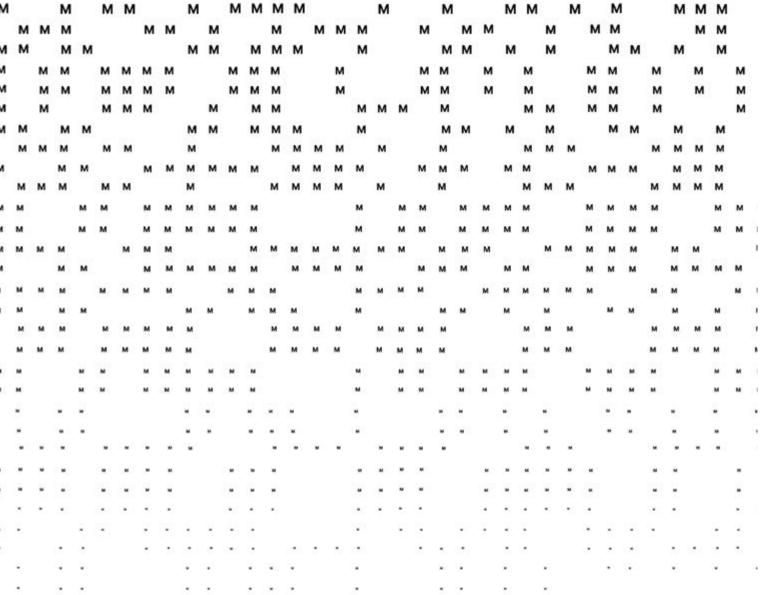
Amendments were made to the ICT Policy to include policies for usage and governance of email broadcasts. The Dasar Keselamatan ICT (DKICT) UNIMAS, also had minor changes to further enhance policies regarding teleworking. All amendments are in affect beginning 9th September 2015.

Upgrade to MyREN3: POP for Sarawak

UNIMAS will upgrade its network bandwidth capacity on the Malaysian Research & Education Network (MyREN) to 2GB from the existing 20Mbps, strengthening further UNIMAS's research capabilities. The upgrade exercise is expected to be completed in November 2015.

UNIMAS Google Streetview

UNIMAS has agreed to allow Google Street View to map the campus. This would allow any visitor a panoramic view of the university facilities and buildings along the main road that traverses through the campus.



Webometrics

The July 2015 webometric rankings are out and UNIMAS has improved from its international position of 2304 (January 2015) to 2032 (July 2015). On the local scene, UNIMAS is now ranked 16th out of 118 local universities.

UNIMAS Now

UNIMAS On The Go, the mobile app for UNIMAS, has been rebranded as UNIMAS Now. Along with the new identity, a iOS version was successfully launched on Apple iTunes. The latest versions of UNIMAS Now are available on Apple iTunes and the Google Playstore.

eCLIPS

The UNIMAS Panel Clinic System (eCLIPS) was successfully soft launched on 10th July 2015 and in full operation by the 1st of August 2015. eCLIPS allows 21 panel clinics in and around Kuching and Kota Samarahan to electronically log the use of clinic facilities by the university staff.

ICT Services Roadshow

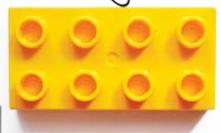
A team headed by Mr. Harun Maksom, Director of the Centre for ICT Services; conducted a roadshow during the months of August and September to 8 different faculties and departments. The goal of the roadshows was to give awareness on the current state of ICT in the university as well as to gain feedback from the users on ICT related issues.

yeaayy!

#yesnaikpangkat

Perjalanan menuju puncak

by Mahani bt Huja Husin





mpat tahun lalu, ePangkat Akademik hanyalah suatu idea. Idea yang pada ketika itu hanya sekadar anganangan. Mengimpikan sebuah sistem yang memudahkan proses permohonan kenaikan pangkat akademik, merupakan misi yang ingin dicapai.

Idea tersebut akhirnya diterima dan mula direalisasikan namun pembangunannya mengambil



masa yang sangat lama. Pelbagai rintangan dan halangan perlu ditempuhi. Antara cabaran yang dihadapi adalah apabila keperluan tidak diterjemahkan jelas. dengan Dengan berbekalkan formula pengiraan yang diwujudkan mengikut tetapan wajaran yang dirasakan akhirnya antaramuka sistem dapat disiapkan. Maka pada ketika itu, barulah keperluan sistem nampak lebih ketara dan seperti dijangkakan. Penambahbaikan demi penambahbaikan dicadangkan setiap kali perjumpaan bersama pengguna.

ketika sesi Acceptance Test' masih banyak idea-idea baharu diterima. Pembetulan serta perubahan ke atas fungsi pengiraan terpaksa dibuat dan ianya mengambil masa yang agak lama, almaklumlah ePangkat Akademik merupakan sistem pertama yang mempunyai pengiraan secara automatik yang dibangunkan oleh Human Capital pasukan Management (HCM).

Setelah melalui pelbagai kepayahan, akhirnya ePangkat Akademik pertama versi digunapakai semestinya turut melalui Fasa Kematangan dengan melalui penambahbaikan proses dan nyahralat sepanjang penggunaannya.

Berbekalkan pengalaman pertama ini, Universiti bersetuju untuk meneruskan pemantapan sistem tersebut dengan perlaksanaan strategi seperti berikut:



Memperkukuhkan keahlian Jawatankuasa Pelaksana dengan dipengerusikan sendiri oleh Naib Canselor, dengan keahlian terdiri daripada kesemua dekan fakulti/pusat dan pengguna utama di samping pasukan teknikal.



Melantik dua orang pakar untuk membantu sepanjang tempoh proses penambahbaikan sistem.

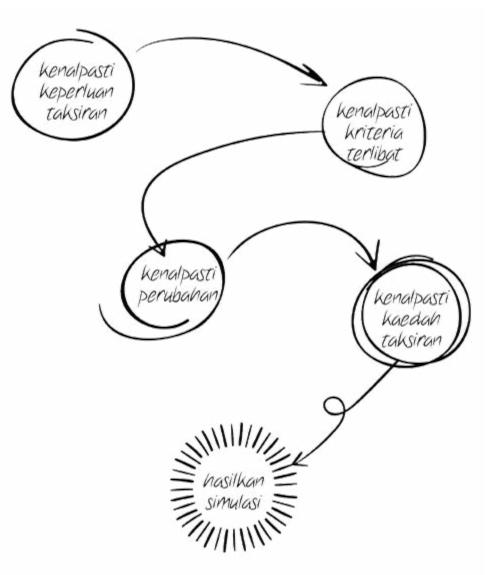


Mengkaji semula Garis Panduan Pelantikan & Kenaikan Pangkat ke Jawatan Profesor di IPT supaya lebih jelas.

Beberapa siri bengkel telah diadakan dan penglibatan secara terus amat membantu dalam menguasai pemahaman keperluan sebenar. Simulasi sistem dibangunkan dengan mengambilkira kesemua garis panduan dan kriteria untuk formula pengiraan markah secara automatik dan realistik.

Berdasarkan idea simulasi, Pasukan HCM telah menghasilkan Model Mondos. Model ini kini digunakan sebagai asas penghasilan simulasi bagi sistem-sistem lain di bawah HCM. Pada asalnya, tiada nama diberikan kepada proses ini, sehinggalah Sistem ePangkat Akademik terpilih untuk menyertai Konvensyen Pentadbir ICT 2015 (KPICT '15) melalui Sesi Perkongsian Amalan Terbaik. Yakin bahawa proses ini berjaya diaplikasikan untuk projekprojek lain di bawah Pasukan HCM, akhirnya proses ini dinamakan Model Mondos bersempena dengan nama gelaran pasukan HCM.

Model Mondos



Taksiran Berasaskan Kriteria

Model Mondos terbukti boleh digunakan untuk mengira markah penilaian kendiri ePrestasi (Akademik) mahupun untuk tapisan kelayakan di dalam Sistem eRecruit UNIMAS; walaupun sistem-sistem ini berbeza dari segi kaedah semakan syarat. Simulasi yang dihasilkan berdasarkan model ini terbukti berjaya membantu pengguna untuk mengenalpasti kriteria, pembolehubah dan kaedah taksiran serta memahami kompleksiti proses kerja yang terlibat.

Fungsi utama ePangkat Akademik:

- Semakan Pematuhan Kriteria dan Penilaian Automatik berdasarkan maklumat yang dimasukkan ke dalam sistem merupakan kekuatan utama sistem. Ini adalah disebabkan, elemen yang sebelum ini memerlukan tindakan manual manusia telah berjaya diautomasikan agar proses pengiraan markah menjadi lebih cepat, tepat dan telus.
- Penilaian Jawatankuasa Verifikasi (Fakulti/ Universiti/Pemilih) telah dapat dipercepatkan dan telah menjimatkan banyak masa.
- Penilaian Panel Penilai Luar secara atas talian juga dapat menjimatkan kos penghantaran bukti secara pos dan dapat dilaksanakan dalam masa yang singkat. Proses untuk memantau tindakan Panel Penilai Luar yang telah dilantik juga menjadi lebih mudah kerana status penilaian dapat disemak dari semasa ke semasa.

The development of the above system is believed to ease the process of promotion for academics. The usage of the above system is timely as it provides a platform for applicants to reflect their score based on the marks given, and provide rooms for improvements. The current system is believed to have incorporated all the necessary criteria for the promotion that would ease the shortlisting

the qualified candidates. The system in short is user friendly and all the measures and KPIs are quantifiable hence an objective score can be reflected. Nonetheless, the most important issue in promotion is still about fairness, as it defeats the purpose of having a good system when promotion is awarded not based on the objectives, but instead on the subjective measures.

Associate Professor Dr. Lo May Chuan, Faculty of Economics and Business

The ePangkat system is good because it can calculate the marks for every journal, grant and contribution I have but my heart sinks when I look at the total score. I cannot help it but think, "If it is so difficult for me to get high scores, what about the others?" The ePangkat system has made the academic promotion application process appear simple but it does not mean that the actual promotion process is simple.

Associate Professor Dr. Ting Su Hie, Centre for Language Studies

Dengan wujudnya Sistem e-Pangkat secara online ianya memudahkan urusan kenaikan pangkat serta mengelak sebarang kesilapan dan pemudahcara dalam pengurusan kenaikan pangkat kakitangan UNIMAS. Sistem ini telah membantu kami untuk menambahbaik dari segi kelemahan dalaman pengurusan pangkat seperti kelewatan memproses urusan dan juga kelewatan memperoleh kenaikan pangkat. Jika sebelum ini, proses kenaikan pangkat mengalami masalah kerana maklumat yang tidak lengkap, tidak tepat, tidak dikemaskini, tidak teratur dan tidak sistematik. Oleh demikian, penggunaan sistem e-Pangkat ini mampu menstrukturkan lagi serta memberikan lebih akses maklumat untuk urusan kenaikan pangkat seseorang kakitangan. Sistem ini membantu dari segi perancangan urusan kenaikan pangkat dilaksanakan dengan lebih cepat dan tepat pada waktunya.

SKYN Methe Mone

Tracing your overtime and travel claims

by Murniza Aziz, Roziah bt Sakup

Among the hardest systems to develop in any organisation involves the ones in finance. Such systems have to be transparent, reliable, accurate and have a low tolerance for errors or mistakes.

So when the task was set out to create a more efficient and better monetary claims system, the developers had to work around the mountain of paperwork that now had to be automated within a system that was easy to use both for the finance office and those seeking to file their claims.

eOT and eClaim are both systems that facilitate monetary claims for two specific areas – travel and overtime claims.

Translating existing manual process to a system that would be accessible online is no easy task but the development team soldiered on and successfully designed, developed and implemented applications that ease and automated the claims process of the university.



eOT (eOvertime) was develop to automate the overtime claims process from the beginning to the end.



The previous manual system required employees to calculate overtime work hours, to make sure that the overtime rate was entered in the correct place, convert the work hours and overtime rates into overtime pay, and to reconcile and sort large stacks of overtime forms each month. No doubt with all the various steps required, human errors were evident.

With a short development period; the chances for errors within the system were high. The Business Process for eOT kept changing and right until the last stages of development before testing; this process was still being worked on. The testing period was no less easy. Different departments had different levels of authorisation for over-time and changes had to be made to cope with dynamic variables.

In spite of the difficulties, eOT was rolled out and the benefits clearly countered the earlier challenges of developing it.

eOT helped reduce the manual work and eliminate the possibilities of human errors.

Features

- Paperless. There is no need to fill in overtime forms.
- Allow the Head of Department or the Officers in Charge to assign overtime through an online interface.
- Intelligent data completion freeing users from the hassle of manually keying in thier information.
- Allows Head of Department or Officers in Charge to approve or reject overtime claims easily.
- Integrated with the payroll system.



eClaim was another financial service that needed an online application to cater for the growing need of domestic travel claims by university staff. The online application was designed based on the rules and regulations stated in the Peraturan Kewangan dan Perakaunan Universiti (PKPU) and Government General Orders.

An immediate challenge was to convince users, that an online application would be more beneficial than the current manual way of processing travel claims. Users and claims officers had to undergo training to switch from the manual process to online, alongside the ongoing development of the application. Training allowed the developers to instill confidence in users that the application could automatically calculate their claims as stated in the PKPU and Government General Orders.

eClaims has proven itself by providing up-to-date information on allowance rates, calculations for mileage and subsistence allowances, providing claims status notifications via smart phone, providing payments via Electronic Fund Transfer (EFT) on a weekly basis and making it easy to conduct audit checks on the claims process of the university.

The development work started in 2009 and the service fully implemented in 2010.

Features

- Online form.
- Checking by Assistant Accountant.
- Verified by Assistant Registrar.
- Online voucher generating.
- Approval by the Head of Department.
- Reviewing Claim reference ID and Bank Account Number.
- Printing report or supporting document.



In 2014, the UNIMAS eClaim application was enhanced with new features such as:

- Online application form for Tabung Amanah.
- Staff can monitor the claims through a smart phone following integration with the university's mobile application - UNIMAS Now.
- Claims payment is made via Electronic Fund Transfer (EFT) which directly deposits the claims into the applicant's bank account.





Revamp f Bette * Resultion

Improving rankings step by step

by Adam Francis

In the wake of the latest release for Joomla 3.x - Framework for Content Management Solution Website, UNIMAS has reviewed the changes to the new framework and made the move of migrating to the latest framework for its main website – UNIMAS.MY.

Why does UNIMAS need to upgrade?

Firstly - security

Starting from December 2014, support for Joomla 2.5 has stopped. All updates and patches for version 2.5 have been discontinued. With no new updates; version 2.5 is vulnerable to website threats.

In terms of Security, Joomla has improved its security with the latest Two Factor Authentication.

What is Two Factor Authentication? By applying this features, the site owner will receive a single-use code on their phones (Yubikey) to their existing passwords. This will make the site extra hack-proof. Better safe, than sorry.

Secondly - enhanced design

Joomla 3.x incorporates a Responsive Template & is Mobile ready, supporting most of the Mobile Version including Tablets & Small-size Smart Devices. With the latest Bootstrap Framework Technology, it eliminates the design & viewing issues for most of Smart Devices available in the market.

Why bother yourself with a mobile-friendly design?

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By looking at the design perspective, the modern design makes it more contemporary which fits UNIMAS motto – Contemporary & Forward-looking. At a glance, you will notice it supports wide-sized page design which most modern websites utilise. The sleek & stylish Parallax effects will surely amazed and add to the user experience.



A whole new experience

Our new template has been integrated to use shortcode system that really gives an impressive modern feel and design.

At first it might be quite challenging if you are used to a WYSIWYG approach. But believe me, even our newly appointed webmaster has no problem mastering it within hours.

I still remember, in the previous Joomla 2.x version, it was very hard to embed a video along with your own customizable fonts on top of it. With the latest Joomla 3.x and the new template, it is now possible without the need of any time consuming editing. Imagine a short clip, with a simple tweak; and you can produce a banner with awesome effects and customisable fonts. Wow, this indeed helps those who do not have any video editing background. Say goodbye to time-consuming video rendering....

Content is king

When we talk about developing a website, we cannot get away from content creation. Readers really love to read a new story every day. And sometimes error happens while you create a new article or maybe, you might think your previous simple write-up is better than the current one, but you already hit the save button.

Hey, do not fret or worry your head off. with the latest Joomla 3.x template, the all new versioning function will definitely help you. Switch to any saved version, or compare between versions whenever you want to as long as you did not trash them.

Previously, the webmasters had issues when it came to information synchronisation. What was needed was a way to make sure any centralised information that was replicated to the sub-domain websites was updated at once. By tweaking the new Joomla 3.x template, the Website Team could relay information from our main site to the various sub-domain sites automatically. Any changes made to the main site would be reflected on sub-domain sites instantly, making updates easier and more efficient.

The Website Team believes that one can learn well, once sufficient training has been given to them. The Website Team has arranged a series of Website Training to prepare the various Microsites' Webmasters to use the latest in web-development skills.

A big thank you, goes out to the UNIMAS Top Management for supporting the Website Team in making the whole idea possible.

Hopefully, with the new template in line, we could improve the website design, enhance the website security and at the same time, keep up with the latest web-trends & technology.



Winner says:

"It may be difficult, but it is possible."

"See the gain."

"See the possibilities."

"Make it happen."



Looser says:

"It may be possible but it is too difficult."

"See the pain."

"See the problems."

Let it happen."



Beauty takes EFFORT

designing for mobile

by Maclean Patrick Sibat

 $\sim 86\%$ users

research products and prices on their mobile devices, before coming to a decision on whether to purchase or not

 $\sim 71\%$ of Malaysian

(about 21.7 million people) own a smartphone



we hit a goldmine of potential clients for offerings of services or products.

52% of Malaysian

would rather use their mobile phones to conduct online searches as opposed to 36% on computers or notebooks and 12% on tablets.

With such a huge consumer base, it is small wonder that more and more Malaysian stone and mortar establishments are clammering to provide a mobile alternative to capture a slice of the potential revenue 64% may produce.

Universities are not exempted from this tidal wave, and it

seems to be the trend of sorts, to have a mobile app available on Apple iTunes or Google Playstore.

And while the casual user may compare the aesthetic beauty of one university to another; the exercise of porting over existing online content or applications onto a mobile platform is not easy.

What may look pretty and awesome on a computer screen may not be so pretty and

awesome when it is resized to 1/25 of the screen's realestate. Things get cluttered in confine spaces. Functions have to be sacrificed to create space. Tables and images become ill-fitted within their borders and text requires balancing, so one can actually read them.

Beauty takes

effort and for the

developer, it is a

lot of effort.

The advent of the mobile first driven design approach seems to solve the issue of scaling down existing content but it presents another set of challenges for developers. Designing primarily on mobile first then scaling up to a

> web site creates issues on the smallest of things like converting finger taps to mouse clicks or filling up the empty spaces that magically appear when 4 inches turns to 21 inches.

> It's a tough time for the system developer community but eventually we get the work done. Whether it's scaling down or mobile first, developers will deliver.

So the next time you look at a mobile app, especially those for universities, remember that there was a team of developers cracking their heads looking for a way to cram all that beauty into a small package.



For more information, visit our website: www.smartveillance.com

Intelligent Scene Detection

Loitering

For enquiry and demo,

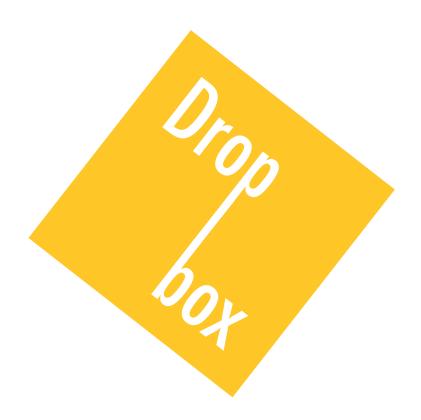
contact us: (60) 82-369 622

Detection of a person or vehicle that remains inside a critical area longer than usual.



Perimeter Breach Detection

Alert for object breaching critical area perimeter



adding **Boost** to your email

Email has always been a key medium of communication in UNIMAS, catering to the needs of administrative, academic and researchers alike. Realising this need, the university has taken the steps to better the email services already available to all its members.

The Lotus Notes client is now known as IBM Notes 9 Social Edition providing business collaboration functionality, including email, calendars, to-do lists, contacts management, teamrooms, discussion forums, file sharing, microblogging, instant messaging, blogs, and user directories.

Email quota has been increased across the board. All top management members (Deputy Vice Chancellors, Directors and Deans) are now allocated 3GB, Academic Staff – 2GB, the professional and management group gets 1.5GB and all support personels get 500MB.

Mobile users, both Android and Apple, can download IBM Verse from both the Google Playstore and Apple iTunes. IBM Verse allows users a direct link to their university's email account, calendars and tasks list.

Checking email via web browser is available via

https://webmail.unimas.my

setting boundaries to information

Email has become the de-facto means of information dissemination for every modern organisation in the world today. From private memos to public announcements, email is both quick, efficient and an easy means to reaching a large body of people.

Yet since the bloom of email as a means to communicate, it has also been a vehicle to advertise products or services which may have no meaning to users, crowding-out otherwise valid email. Policies are needed to govern and manage the chaotic stream of messages users may receive in their email.

The **UNIMAS Email Broadcast Policy**, managed by the Corporate Planning and Communications Division (Chancellory), is a set of rules that sets the tone for the use and governance of electronic email broadcasts. It helps to regulate and filter out messages that are broadcasted to the masses.

The policy classifies all electronic email broadcasts into two main categories – **UNIMAS-All** and **UNIMAS-Broadcast**.

Under the policy, announcements will now be forwarded to the Corporate Planning and Communications Division for scrutiny before being broadcast. For announcements made via UNIMAS-Broadcast, the respective faculties, centres, institutes or divisions are responsible for ensuring the broadcast meets the requirements set forth by the management before it is sent out.

UNIMAS-All

Announcements that are official statements from the university's top management. Announcements may include time-critical annoucements, related to safety or health issues or closure to buildings or services related to the core functions of the university.

UNIMAS-Broadcast

General announcements on the events of the university. These annoucements may come out from the various faculties, centres, institutes or divisions.



IRIS and IR

building an information bridge

On looking for solutions to problems, one may have to look for novel and unique ways to bring about the desired results. The obvious solution may not be the best one and in some cases, the obvious approach would open up doors to more problems rather than to solve such problems.

This out-of-the-box approach was needed when attempting to integrate the existing Research Gateway (iRIS) with the Institutional Repository (IR). The need to have researchers' publications listed in their research vitae was necessary to further enhance their visibility to a global audience.

It was decided early on, that integration would not be done at the database layer as this was risky, problematic and would cause problems when the IR system — which uses ePrints, required a version upgrade.

The use of Web Services came to mind. For those who arenot familiar with Web Services, it is a standardised way of communication between two web applications using various readily available web components. The Web Services only manipulate data that is an output of the applications in questions, there is no direct manipulation of the database, thus eliminating the risk of ever damaging the application.

There are two integration options for ePrints using Web Services –

- Simple Object Access Protocol (SOAP) webservice or
- Lightweight JavaScript Object Notation (JSON) output using the EPrints export plugin

The ePrints webservice (SOAP) offers a robust integration option. However, it is not really Restful-friendly. So, we opted for the Lightweight JSON output method.

But there were limitations with the Lightweight JSON output method.

There is currently no Cross-Origin Resource Sharing (CORS) support. CORS is a mechanism that allows restricted resources, such as fonts on a website, to be shared with another website. Modifications were made to the output from ePrints to allow sharing of resources such as fonts to pass through.

By creating this bridge for ePrints to share its output with iRIS, the research system was able to publish a list of all academic publications the researcher had within the IR collection.

As for now, this is the most feasible solution. There are many improvements that can be done such as: reducing the size of the query result. By using EPrints export plugin, the output is just too large resulting in a slow listing of the search results. Enabling CORS support would greatly improve the amount of information that can be shared between the two systems as well as improve the security of the integration in general.



A Creative Spark

creativity and ICT

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Creativity is often attributed to a person of the arts. Those that are skillful in the elegant brushes of paint or in the constructs of a symphony. Yet little can be said about those that wade into the murky swamp of ICT. Instead it is a world that is perceived as cold and rigid and fixed. And in their defence – it is largely true.

ICT is bounded and shaped by the rigid confines of computer code – those ones and zeros that make up strings of command that drives the software which inhibit cold, lifeless hardware.

How then can one expect creativity from people who are sworn to maintain rigidness?

Yet, it is within the confines of this rigidness, that creativity sprouts. Creativity needs to spring from established norms, creating new thoughts and generating new ideas. It's a spark that comes when one realises, "Hey, I can do this differently."

Creativity for the ICT citizen requires several things;

- The license to explore much progress in the ICT world can be attributed to people who took the time to crack or hack existing norms. 'Hackers' are some of the most creative people in the ICT industry. They see things, the normal programmer missed out. They map out the valleys and mountains of computer code, creating the paths for others to follow and improve on. They are misfits that put collections of their travel together to create new and exciting forms of software that pushes the information world forward.
- The right to challenge the norm challenge breeds ideas. The age old idiom that one should "learn the rules, then bend them" holds court over the world of creativity in ICT. Creative programmers are often times the most expert in their field, having the ability to twists codes in ways unintended by their creators. They feels the borders and yet shift it slightly forward to expand the boundaries.
- The leeway of mistakes creativity makes mistakes. A lot of mistakes. Yet, without mistakes, creativity cannot take one along other paths of discovery. An environment that does not condemn one for mistakes yet is graceful enough to allow a "2nd chance" would bear fruit. Thomas Edison is well known at having invented the light-bulb, yet he is equally famous for having tried thousands of interation of the same thing until he got it just right. Mistakes are part of the creative process.

One last thing – creativity comes naturally to some, not to others. It cannot be forced but can be encouraged. It comes when it wants to, how it wants to and to whom it wants to.

So create an environment that promotes it, nurtures it and listens to it. And surely, creativity can spark even in the most mundane of places, to the most unlikely of people.

"Creativity is just connecting things. When you ask creative people how they did something, they feel a little guilty because they didn't really do it, they just saw something. It seemed obvious to them after a

- Steve Jobs

while."



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