Asia-Pacific
Economic Cooperation

_____

Malaysian Karsof^{TM} Biometric Technology

Submitted by: Multimedia Glory Sdn Bhd (MGSB)

**Third Conference on Secure Trade in the APEC
Region
Incheon, Korea
25-26 February 2005**

Asia-Pacific Economic Cooperation

<u>**MALAYSIAN Karsof™ Biometric Technology**</u>

A Case Study on the usage of
Karsof™ Biometric Technology to Secure Business Mobility
in Airports and other entry and exit points.

Presented at
The Third Conference on Secure Trade in the APEC Region
(STAR III)

INCHEON, KOREA
25th –26th FEBRUARY 2005

Purpose   : Information

Submitted by : MALAYSIA

Presented by : K.Karthik
[Inventor of Karsof™ Biometric Technology]

MALAYSIAN Karsof™ Biometric Technology

Introduction

The successful implementation of Karsof Total Airport Security System has prompted the next phase of development to achieve total security for Malaysia. It is necessary to identify the problems in order to tackle the issues of Land Sea and Air security needs

Background Of The Problem

All major ENTRY AND EXIT points in Land, Sea and Air are areas of border control and management. It has always been a source of difficulties in respect of security exposures MANAGEMENT with current practices.

Without maximum control of the background identities of these people entering and exiting the country, security is significantly compromised

TERRORISM is the key security issue on each country's agenda today and will be increasingly dangerous if no secured measures are taken. Society will be totally disorientated

Every country is related to one another and Terrorism is a common security threat. If no cooperation is developed and enforced fully, every country will suffer.

In Malaysia, the current problem being tackled is the exit of all illegal workers from Indonesia, Bangladesh and others. It is the policy of the Malaysian government to offer Amnesty to all but with the understanding that they return legally. Other immigration issues would include over-stayers, criminals and refugees.

Within each country, there is always compromised security. Locals are being recruited to assist illegal activities through ideological impetus and the prevalent attraction of unauthorized monetary influences.

Within each organization/agency, authorized personnel identities have been duplicated or replaced.

Examples of Security Threats and Sources of Breaches are:-

1. Terrorism
2. Threats
3. Sabotage
4. Smuggling
5. Incognito Passengers
6. Undesirable elements

Importance of International Security

The world today has changed with the advent of September 11, 2001 terrorist act in USA. The economic and social impact has to be taken seriously and any inaction will be disastrous

The global threats of nuclear armaments will cause untold damage to all societies and countries. Regional insecurity has the characteristics of the lack of border control and the monitoring of foreigners in each country especially those with international criminal records.

Under the Passenger category, the following are identified:-

1. Citizens - Criminal Records if any
2. Tourists - Criminal Records and other background
3. Businessmen – Camouflaged Motives
4. Students – Other than education activities
5. Foreign Workers – Overstaying and illegality
6. Authorized Personnel – Sabotage and Espionage
7. Criminals – Ignoring country's laws
8. Undesirable Elements – Multiple passports

Total Security at Entry and Exit points

In Malaysia, total security is the goal and the following is a system description of what is to be implemented in future:-

1. Registration and Control of Foreign Workers (Ongoing)
2. Registration of Tourists
3. Registration of Businessmen
4. Citizen's travel movements
5. Registration of Foreign Students
6. Registration of Visitors and Authorised Personnel

With a controlled registration system in the country, the security exposure is greatly reduced at source in the most economic manner while large armed forces to provide physical security presence would be better managed and thus ensuring efficiency and effectiveness.

The outcome of a total security system would at the very onset deter any undesirable elements to cause havoc in the country thereby ensuring safety, peace and harmony.

Present Practices

Biometrics technology has been bandied around and implementation of it has been carried out in many countries. Has the system been successful? Or is the system still developing? The degree of success depends on the state of the art technology.

Towards a total secured environment

The desired optimum measures envisaged by Karsof are as follows:

1. Preventive Actions – before entering a country by checking the background of the visitor/passenger.
2. Easy secured mobility and monitoring of movements – entry by seaport and exit by airport.
3. Quick Immigration clearance and 100% authentication
4. Period of stay and movements within the country
5. Maintaining a database of passengers' mobility
6. Preventing duplication of authorized passes
7. Preventing lack of physical control of passes
8. Management of Security Personnel
9. Management of Pass holders

What is the Best Solution?

Biometric is the only solution

Biometrics is a unique, measurable characteristic of a human being. It can be used for automatic recognition and verifying a person's identity.

To recognize and verify human characteristic quickly and automatically, in **Real Time** is the ultimate solution.

Biometrics provides the highest level of security because of uniqueness of each person's fingerprints and the matching of two similar fingerprints in two subjects has not happened in Karsof's biometric system based on the Kuala Lumpur International Airport access control system experience to date.

Key Success Factor

Implementation of Karsof Fully Integrated System at Entry and Exit points consists of;

1. Acceptance, convenience and reliability
2. Takes little time and effort
3. Least intrusive
4. Verification is fast and reliable
5. Fingerprint device is simple
6. Based on Open Architecture to integrate with centralized databases like Immigration, Police Records, Criminal Records – local and international
7. Online identification with central databases
   a. Accuracy and minimum fingerprint storage size
   b. Highest encryption standards

Review of KLIA Security System

Since 2001 when the airport security system was implemented (before Sept 11), the control of all authorised personnel (staff) for Daily Pass and Access Control is totally successful with Karsof Biometrics System.

Current Operation of Karsof Biometric Illegal Immigrant Management System at all Entry and Exit Point –

To date, there is an initiative to have all passengers, visitors, tourists, businessmen, security personnel, foreign workers and students to be fingerprinted upon arrival and exit. This is the enhancement that is required for additional security to the country.

In Malaysia, Karsof security system has been adopted for the security control of all entry and exit points.

To complement this network, all Malaysian embassies around the world will install this system.

All foreign governments/embassies can log in to ascertain their own nationals' records if necessary

An Amnesty program (limited period) has been launched for all foreign workers who have overstayed in Malaysia. They are allowed to return to their homeland without any punishment and can re-enter in future with proper permits via fingerprinting registration. Such personnel will have their fingerprints checked for references against criminal and illegal databases
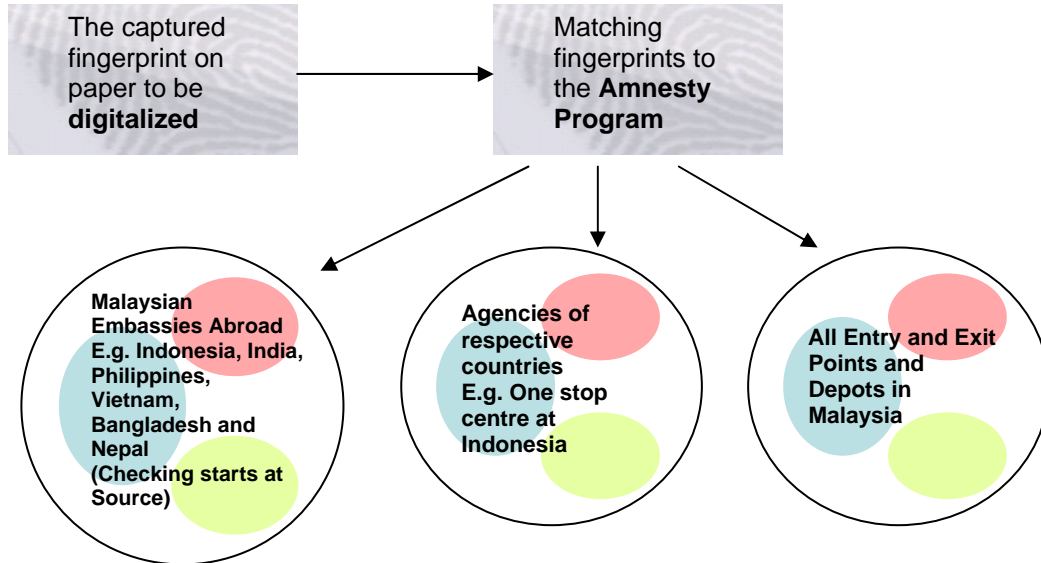
With this system, only the registered worker can come into Malaysia and not any other person.

Operation Phases

1. Illegal Workers management - Installation of system in 136 locations throughout Malaysia and all connected centrally to the master database placed at Immigration Head Quarters

2. Legal Workers registration and management – from the source before entering the country

3. Passenger authentication and verification upon checking in and before entering aircraft – in the future

The goal is to have a total and fully integrated system throughout Malaysia. The reason why this is possible and implementable is the advanced and special technology of Karsof Biometrics Security System with state of the art encryption protocol, business continuity system and many other emerging customised software solutions as required by governments, trade and industries

The captured fingerprint on paper to be **digitalized**	→	Matching fingerprints to the **Amnesty Program**

Malaysian Embassies Abroad E.g. Indonesia, India, Philippines, Vietnam, Bangladesh and Nepal (Checking starts at Source)

Agencies of respective countries E.g. One stop centre at Indonesia

All Entry and Exit Points and Depots in Malaysia

Current Development

Image of current fingerprinting methods can be scanned digitally with Karsof system techniques. It can be matched with *a live finger* on line within 0.5 second in Malaysia and internationally viz: – Malaysian embassies in Indonesia, India, Vietnam, Philippines, Nepal and Bangladesh in conjunction with local government agencies.

1. All locations will be controlled and monitored centrally at Malaysian Immigration HQ.

2. Countries with scanned fingerprint (image) can enhance their systems with Karsof technology and used it productively.

3. Business Continuity in fingerprinting data management and security will be incorporated for all countries.

Karsof™ Biometric Illegal Immigrant Management System

Immigration HQ → **Entry and Exit points** / **Branches** / **Malaysian Embassies Abroad** → Total 136 Locations
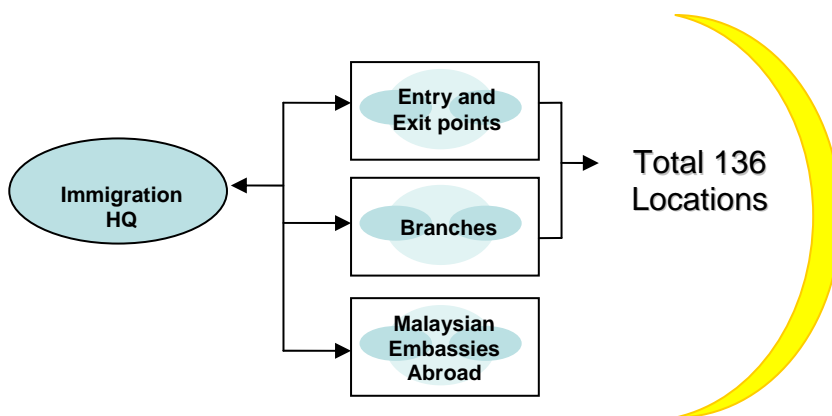
Conclusion

The future is bright for international cooperation in the combat of global terrorism. With advancing technology especially in biometrics, the gap in the failure rate in biometrics authentication is reduced.

KARSOF is already in the forefront to set international benchmark in fingerprinting biometrics. This is translated into a focused and fully managed central database that can be accessed by all participating countries in the Asia Pacific region.

With a centrally coordinated database, there is economy of scale with accompanying efficiency in security management. Once security is fully managed and transparent, the threat to national and international security is significantly reduced.

No country can afford to be lax in security with the constant threat of international terrorism that crosses borders at will. With a "You Are Who You Are" security system internationally coordinated, the world will be a better place to live because we would have greatly curtailed the undesirable movements of bad elements worldwide.

Annex

A Historical Synopsis of KL International Airport - Malaysia

Karsof™ Total Airport Security System (KTASS) was successfully deployed in KLIA in 2001 with Karsof™ Biometrics Technology. *Fingerprinting* was the mode of Biometrics Identification and Recognition. KTASS was developed to provide biometrics access control in conjunction with the workflow system for optimal security management in respect of all airport pass holders and visitors within all secured premises of the airport.

The above technology is based on the unique *"One to Many"* and "One to One" identification and recognition method. The *"One to Many"* identification and recognition method verifies individual fingerprints from among a large database of fingerprints without interference or aid by the use of any other media or instruments.

In the case of KLIA, the Karsof™ Total Airport Security System caters for approximately 27,000 pass holders registering two fingerprints each. This is a modular system that can be customized to complement differing airport security environments and circumstances.

The Karsof™ Total Airport Security System is widely used as evidenced from the 150,000 transactions per day.

Unique Features

The following are the unique features of the Karsof™ Biometric Technology

1. 16 bytes for storage of a fingerprint, 1ˢᵗ of its kind in the world
2. Fastest identification – 0.5 seconds
3. Integrated with existing sub-systems
4. Fingerprint identification speed not affected by the size of the database.

The following are the five patent pending technologies incorporated into Karsof Biometric Technology.

i. Biometric verification for Electronic Transactions over the Web
ii. Process of Storage of Biometric Features
iii. Method of identifying an individual using Biometrics
iv. Computer Network Security
v. Applications in Biometrics

Karsof Technology is derived from local and worldwide patent pending technologies compiled into a total solution system incorporating the following:-

Karsof™ Biometric Technology (KBT)

- High performance identification algorithm, which recognizes, verifies and access data from any databases regardless of the size in less than 0.5 second

Karsof™ Biometric Fingerprint Data (KBFD)

- Process of storage of Biometric features that enable the lowest fingerprint data storage size of *less than 20 bytes* (uncompressed) compared to other industries' data size of equal or more than *256 bytes* (compressed).

Karsof™ Biometric Database (KBD)

- Methods of identifying an individual using Biometrics.

Karsof™ Network Security (KNS)

- Karsof Technology is secured by Karsof Network Security protocol which has 1024 bits encryption level and PKI. Its unique feature is the *dynamic* protocol which switches the encryption level according to a change in protocol thus preventing hackers and crackers from entering the system.

Karsof Business Continuity

- Methods in ensuring duplication of data management and uninterrupted services of servers

About The Company

1. Multimedia Glory Sdn Bhd (MGSB) was formed in 1999.
2. MGSB is a MSC status Company.
3. Karsof™ is the Trade Name for all the products from MGSB.
4. The company holds seven patent pending technologies registered as a Malaysian innovation and the patents are pending worldwide including United States, Singapore and PCT.
5. Karsof™ Total Airport Security System (KTASS) is one of the MGSB's applications that won four awards,

   a. MSC-APICTA (Asia Pacific ICT Award) 2003 "Best of Security System Applications"
   b. MSC-APICTA 2003 "Best of the Best Prime Minister's Award"
   c. International APICTA 2003 "Best of Security"
   d. Product of the year 2004 award

6. Karsof™ Time Attendance and Management System (KTAMS), a product that made history in 31st October 2003 when it was used by the previous Prime Minister Tun Dr Mahathir Mohamed to clock out and the new premier Datuk Seri Abdullah Ahmad Badawi to clock in on 3rd November 2003 in the Prime Minister's office.

7. Karsof™ Time Attendance and Management System (KTAMS) is in use from 2001 by our Prestigious client Prime Minister Office, Malaysia.

Karsof™ Biometrics Technology

Best Practice In Secure Trade

Case Study on Business Mobility

A Malaysian Technology

Multimedia Glory Sdn. Bhd.

Background Of The Problem

- Need to control all entry and exit points in a country

- Current practices need to be improved for better management control and monitoring

- Compromised security will lead to Terrorism

- Background identities check is mandatory in security management

- No International linkages of database (Criminal)

- Malaysia's current problem – Illegal Foreign Workers

- Money as a motivator for espionage, duplication of identities and forgery

Multimedia Glory Sdn. Bhd.

karsof

Background Of The Problem

Major concerns

Terrorism	Hijacking
Threats	Bomb Scare
Sabotage	Criminal Offences

Smuggling

Incognito Passengers

Undesirable elements

Multimedia Glory Sdn. Bhd.

karsof

Background Of The Problem

Major concerns

Citizens	Criminal Records
Tourists	Criminal Records and other background
Businessmen	Camouflaged Motives
Students	Other than education activities
Foreign Workers	Overstaying and Illegality
Authorized Personnel	Sabotage and Espionage
Criminals	Ignoring country's laws
Undesirable Elements	Multiple Passports

2

3

Multimedia Glory Sdn. Bhd.

Towards a Total Secured Environment

Preventive Actions – before entering a country by checking the background of the visitor/passenger

Easy secured mobility and monitoring of movements – entry by seaport and exit by airport

Quick Immigration clearance and 100% authentication

Period of stay and movements within the country

Maintaining a database of passenger's mobility

Preventing duplication of authorized passes

Preventing lack of physical control of passes

Management of Security Personnel and Pass Holders

Multimedia Glory Sdn. Bhd.

BIOMETRICS SECURITY SOLUTION

Biometrics is the only solution

- Biometrics
- Biometrics Technology
- Biometrics in the security industry
- Biometrics in airport environment
- Storage
- Accuracy
- Fastest Identification

4

Multimedia Glory Sdn. Bhd.

Key success factor

- Acceptance, convenience and reliability
- Takes little time and effort
- Least intrusive
- Verification is fast and reliable
- Fingerprint device is simple
- Based on Open Architecture
- Can be easily integrate with centralized databases like

  Immigration, Police Records, Criminal Records – local and international
- Online identification with central databases
- Storage should be scalable to millions of records
  - Accuracy and minimum fingerprint storage size
  - Highest encryption standards

Multimedia Glory Sdn. Bhd.

REVIEW –
Karsof Total Airport Security System

- Before Sept 11, 2001, our country, Malaysia anticipated the importance of a total secure environment and took prompt action to ensure its successful implementation starting with the Kuala Lumpur International Airport (KLIA)

- The Karsof Total Airport Security System can be a benchmark for the world starting with the adoption by the APEC Countries

- Once the system is used a common standard for Total Security, the synergies and integration of crucial databases amongst countries can fully utilised

Multimedia Glory Sdn. Bhd.

Scope

Karsof™ Biometric Illegal Immigrant Management System

> **a) To legalize the illegal immigrant**

> **b) To eliminate illegal immigrant**

> **c) To verify the illegal immigrant's background before entering the country**
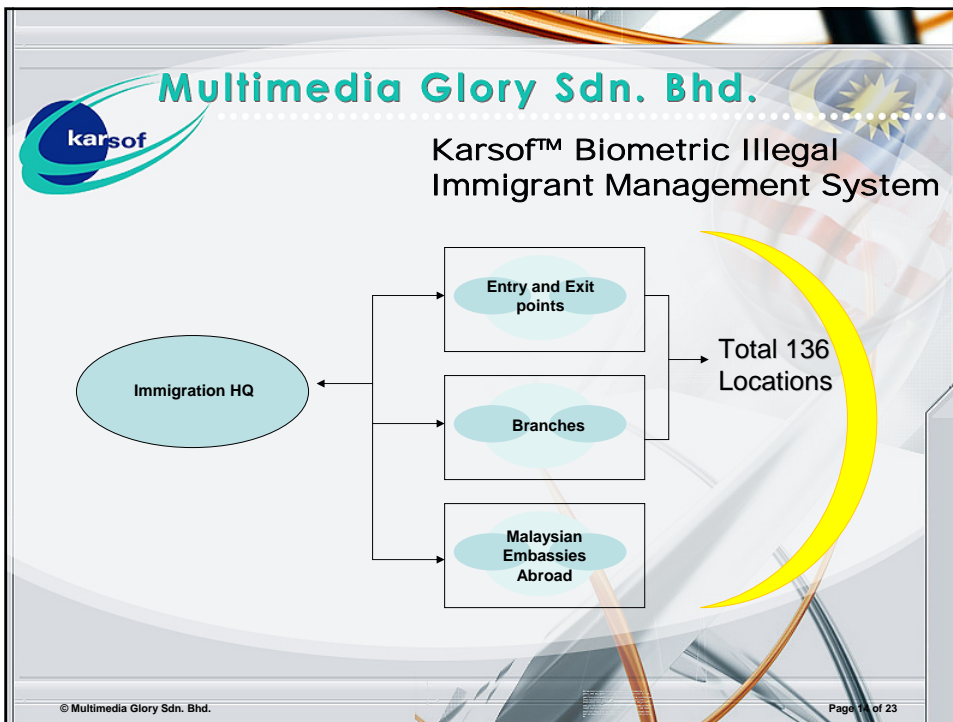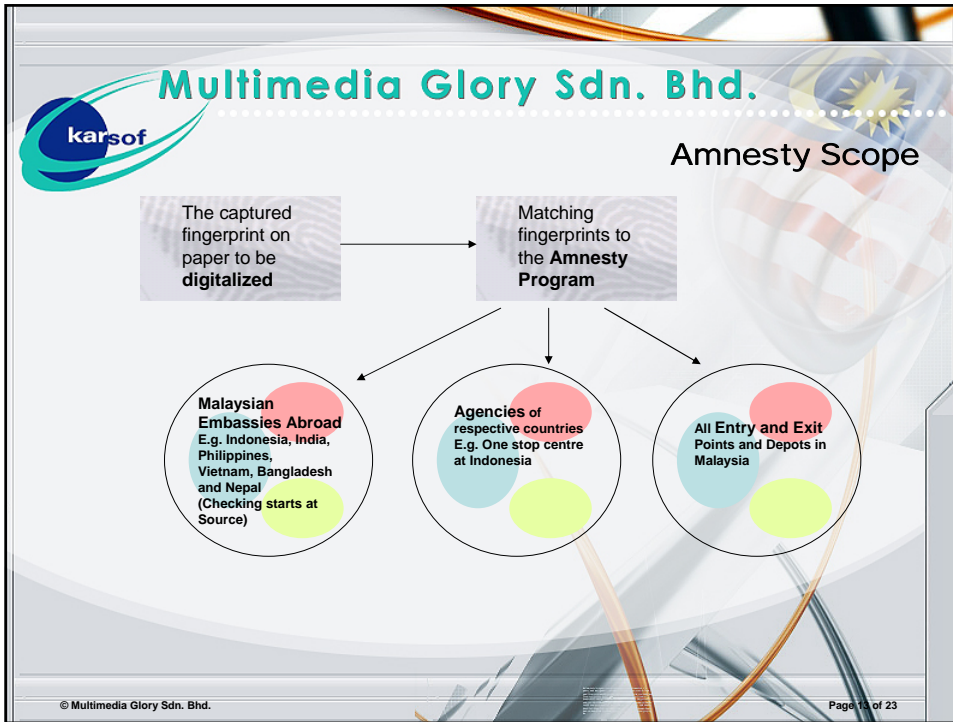

Multimedia Glory Sdn. Bhd.

Scope

Karsof™ Biometric Illegal Immigrant Management System

- **Amnesty Program**
  - **Illegal immigrant's fingerprint capture at entry and exit points and depots on the paper document presented**
  - **Utilizing this fingerprint to legalized the immigrant when they return to Malaysia**

- **Normal**
  - **When a illegal immigrant is arrested, his or her fingerprint will be captured at entry and exit points and depots**
  - **Utilizing this blacklisted fingerprint to stop the illegal immigrant from entering the country in future**

6

Multimedia Glory Sdn. Bhd.

Amnesty Scope

The captured fingerprint on paper to be **digitalized** → Matching fingerprints to the **Amnesty Program**

Malaysian Embassies Abroad
E.g. Indonesia, India, Philippines, Vietnam, Bangladesh and Nepal
(Checking starts at Source)

Agencies of respective countries
E.g. One stop centre at Indonesia

All Entry and Exit Points and Depots in Malaysia

Multimedia Glory Sdn. Bhd.

Karsof™ Biometric Illegal Immigrant Management System

Entry and Exit points

Immigration HQ

Branches

Malaysian Embassies Abroad

Total 136 Locations

7

8

9

Multimedia Glory Sdn. Bhd.

Conclusion

- ✓ International cooperation in the combat of global terrorism

- ✓ With advancing technology especially in biometrics, the gap in the failure rate is reducing

- ✓ Fully managed central database that can be accessed by all Countries, results in national and international security is significantly improved

- ✓ No country can afford to be lax in security with the constant threat of international terrorism that crosses borders at will.

Multimedia Glory Sdn. Bhd.

About the Company

1. Multimedia Glory Sdn Bhd (MGSB) was incorporated in 1999.

2. MGSB is a MSC status Company.

3. Karsof™ is Trade Name for all the products from MGSB.

9

Multimedia Glory Sdn. Bhd.

a. MSC-APICTA (Asia Pacific ICT Award) 2003 "Best Security System Applications"

b. MSC-APICTA 2003 "Best of the Best Prime Minister's Award"

Winner of "Best Security System Application"
MSC-APICTA 2003

Winner of "Best of the Best" Award from
Prime Minister of Malaysia

Multimedia Glory Sdn. Bhd.

c. International APICTA 2003 "Best of Security"

Winner of "Best of Security"
APICTA 2003

10

Multimedia Glory Sdn. Bhd.

d. Product of the year Award 2004

Product of the Year 2004 Award

Multimedia Glory Sdn. Bhd.

About the Company

Karsof™ Time Attendance and Management System (KTAMS), a product that made history in 31st October 2003 when it was used by the past Prime Minister Tun Dr Mahathir Mohamed to clock out and the new premier Datuk Seri Abdullah Ahmad Badawi to clock in on 3rd November 2003 in the Prime Minister's office.

Tun Dr.Mahathir Mohd
Placing his finger
for attendance while he
leaves his office in his
last day

Datuk Seri Abdullah
Ahmad Badawi
Placing his finger
for attendance while
he coming his office in
his first day

11