

# Proposal of Warwick PalmReader

**Version 1.03**



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## 1. Technology Overview

Biometrics is the science and technology of measuring and analyzing biological data. In information technology, biometrics enables a corporation to measure and analyze human body characteristics, such as DNA, fingerprints, eye retinas and irises, voice patterns, facial patterns and hand measurements, for authentication purposes.

Authentication by biometric verification is becoming increasingly common in corporate and public security systems, consumer electronics and point of sale applications. In addition to security, the driving force behind biometric verification has been convenience.

In this proposal, we are bringing to you our latest biometrics product, **Warwick PalmReader**, that combines high accuracy of biometric identification, robust performance, cost effectiveness, user-friendliness, and contact-less technology, all packed into a single product.



**Warwick PalmReader** employs the palm vein pattern recognition technology, which combines extremely low error rates scanning, with a contact-less device to provide of use for all users. Using image recognition and optical technology to scan the normally invisible vein pattern of the palm, it is highly resistant to counterfeiting and non-intrusive.

## 2. Cost Saving – Automated Time Attendance

Implementing an automated system can alleviate nearly all of the problems associated with manual time collection. Accurate real-time data ensures that all departments stay connected to the same clear picture, and any errors are quickly realized and resolved. Reductions in the labor necessary to manage a manual time collection system give a quantifiable return-on-investment (ROI) within a reasonable amount of time. Let's take a look at the scenario below.

### 2.1 Manual Operation Cost

At Outlets (check/verification before submission):

Average Salary per Manager: RM 2,500 /month  
or RM 10.42 /hour  
Average Duration Needed: 2 minutes /staff card  
Hence, average cost: RM 14.50 / 60 x 2  
= **RM 0.35 /staff**

At HQ - Accounts/Payroll Department (salary calculation):

Average Salary per Accounts Staff: RM 1,800 /month  
or RM 7.50 /hour  
Average Duration Needed: 10 minutes /staff card  
Hence, average cost: RM 7.50 / 60 x 10  
= **RM 1.25 /staff**

### 2.2 Buddy Punch / Time Theft Cost (at outlets)

Average Salary per Staff: RM 900 /month  
or RM 3.75 /hour  
Average Time Theft: 10 minutes /staff/day  
Hence, average cost: RM 3.75 / 60 x 10  
= **RM 0.63 /staff/day**

### 2.3 Other Costs

This includes all other hidden costs and/or indirect damages such as data entry error, rework for repairing of defective data entry, inefficient labor usage, salary delay that causes dissatisfaction to staff, and etc. This may be difficult to determine because it is a non-standard items, and hence we would just make a wild assumption of **RM 0.01 /staff/day**.

### 2.4 Estimated Saving Summary

	Number of Staff			
	1	50	100	300
Outlets – Manager	0.35	17.36	34.72	104.17
Outlets – Time Theft	0.63	31.25	62.50	187.50
HQ – Accounts & HR Dept	1.25	62.50	125.00	375.00
Misc. Costs	0.01	0.50	1.00	3.00
Estimated Saving (/month) :	66.97	3,348.33	6,696.67	20,090.00
Estimated Saving (/year) :	803.60	40,180.00	80,360.00	241,080.00

### 3. Biometrics Comparison

At present, there are various biometrics products available, and here is an accuracy comparison table of the various commonly available technologies.

Rate	Palm Vein	Iris	Fingerprint	Hand Geometry	Facial
FRR	0.01%	0.01%	0.1%	0.8%	2.6%
FAR	0.00008%	0.0001%	0.001%	0.07%	1.3%

#### False Rejection Rate (FRR)

This is the probability the the system incorrectly declared a failure of match between the input pattern and a matching template in the database. For eg., 0.01% means 1 in 1,000 attempts).

#### False Acceptance Rate (FAR)

This is the probability the the system incorrectly declared a successful of match between the input pattern and a non-matching template in the database. For eg., 0.01% means 1 in 1,000 attempts).

Below is the comparison in other areas:

Type	Weaknesses	Accuracy	Sensor Type	Cost
Palm Vein	Sensitive to direct rays of the sun and other strong lightings.	Very High	Contact-less	Low
Iris	Affected by size of eyes, and reflection of eyeglasses.	Very High	Contact-less	High
Fingerprint	Affected by nature of skin, too dry/wet skin, abrasion, dirt on sensor surface, etc.	High	Contact	Low
Facial	Sensitive to lighting/posture, cannot recognize with eyeglasses, facial hair, cosmetics, twins, etc.	Low	Contact-less	Low

## 4. Applications

### 4.1 Time Attendance

Deploy biometrics time and attendance systems with hard-to-forge technologies to minimize the opportunity of staff ID fraud and buddy punching. Furthermore, increase staff productivity and reducing human error with automate payroll integration.

### 4.2 Access Control

Make your palm as the key to access your office buildings and premises. The Warwick PalmReader technology has been well tested using collected data samples of 140,000 palm vein patterns to verified reliability for identification and authentication.

### 4.3 Identification (Customizations)

Any other type of identification or human management requirements such as visitors management system, loyalty & rewards system, workforce management, and etc.

## 5. Features Highlights

### 5.1 Network Ready

This feature offers the ability to operate in a stand-alone and/or multiple terminals deployment across large geographical area.

### 5.2 Browser Ready

The web browser access feature provide user-friendly interface for system administrations and reporting purposes.

### 5.3 100% Enrollment

Warwick PalmReader had so far achieved an impressive record of 100% enrollment, even in large scale deployments with more than 1,000 employees. This is definitely a dream for the case of most fingerprint products.

### 5.4 Export to HR/Payroll System

Transaction records can be exported or integrated to HR/payroll system for automated staff wage calculations. This feature eliminates human errors, and improve time and overhead saving in HR department.

### 5.5 Integration API

This feature provides the capability to integrate the Warwick PalmReader to external software applications.

## 6. Advantages

### 6.1 Difficult to Forge

Vein patterns exist inside of the body, furthermore, the sensor of the palm vein scanner needs the hand and blood flow to register an image, it is hence practically impossible to recreate someone's biometric template.

### 6.2 Contact-less and Hygienic

When using the palm vein reader, the hand does not have to touch the sensor which improves hygienic concerns and scanner durability, For those utilizing the hand guide, the device is easy to clean and keep sanitary without compromising the performance of the actual biometric sensor.

### 6.3 Performance and Reliability

The Warwick PalmReader technology has been well tested using collected data samples of **140,000** palm vein patterns to verified reliability for identification and authentication.

Palm vein scanning technology is not affected by skin integrity, such as cuts, scrapes, scars, bruises, dryness, roughness, moisture, and other skin conditions.

### 6.4 Associated Stigma

Some may consider the capture of their fingerprint visceral has the potential to be misused or stolen. Palm vein technology reads vein patterns beneath the skin of a person, which exist inside the body, that makes it practically impossible to recreate the biometric template.

### 6.5 Cost Effectiveness

For all the distinct advantages that palm vein technology offers, it is an affordable alternative to other biometrics technologies. It may look slightly more expensive than the fingerprint products on the surface, but the underlying leakages such as staff fraud or employee time theft, no wear-and-tear parts, and time saving in payroll department in the long run can easily justify this little premium investment.