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Information Technology for Practice 2016

Implementation of
Biometric Employee
Identification System
at Ardagh Metal

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Old attendance system

- Ardagh Metal Packaging, Teplice
- Glass and metal products, metal containers
- Attendance system with a terminal for identification media



Reasons for transfer to biometry

- Effort to eliminate identification frauds;
- Some employees used "buddy punching" for clock-ins and clock-outs (There were also reported cases of workers who had their shift marked as worked but demonstrably were not at work at all);
- Loss of identification media;
- Prestige – Be the first company within Ardagh in Europe to use such method of attendance management.



Biometric terminal deployment project

- Setting up terminal parameters including proper synchronizing;
- Implementation in the attendance system database;
- Entering new tables, necessary for terminal-collected data synchronization, in the database

Hardware



ZK4500 reader (500 DPI)



The S900 attendance terminal



First tests

- Out of 144 company employees, a total of eight employees did not pass through the fingerprint creation process.
- It was not possible to take their fingerprints in the quality sufficient for successful binary chain comparison



Fingers of the employee with ichthyosis



Fingers of workers - fitter



Fingerprints of worker





Maintenance workes's thumb





Biometrics Identification Problems

Reliability evaluation is influenced by:

- Fingerprinting – quality of samples stored into the database
- Device firmware
- Setting the sensitivity threshold (=how likely it is created a string identical to the one that is already stored in the database)

Adjusting reader parameters

Table 1 Data evaluation with 55 % sensitivity threshold.

Centre Name	No. of Centre Staff	No. of Identification Attempts / No. of Rejections		Rejection Rate / FRR	
Manufacturing	65	766	168	21.93 %	0.22
White Collars	24	246	49	19.92 %	0.20
Fitters	12	132	52	39.39 %	0.39
Tool-Shop	18	198	53	26.77 %	0.27
Electrical Maintenance	3	41	12	29.27 %	0.29
Quality	3	34	9	26.47 %	0.26
Temporary Workers	8	84	31	36.90 %	0.37
Shipping	7	72	21	29.17 %	0.29
Total	140	1573	395	25.11 %	0.25



Adjusting reader parameter

- Sensitivity threshold of 35 % - rate of identification rejections dropped by more than 6%
- It means that due to wrong identification, a person is sometimes not rejected but confused for another one
- Based on measurements, the threshold of sensitivity was set to **38 %**.



Conclusion

Summary: Biometrics has great options, but the deployment is not trivial

- Sensitivity for cleanness sensor
- Depending on the accuracy of the fingerprint database
- About 5% of the population is unable to provide fingerprints to make them usable for identification (at Ardagh: 8 people from 144)



New project at Ardagh

- System for Checking the Door Closed Space by Means of Biometric Identification
- Currently we are doing requirements analysis

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Thank you for your attention...