



VOICE LEADERSHIP FORUM
2010



Hong Kong Housing Authority – Our Move to Voice Biometrics

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About Hong Kong Housing Authority

- A statutory body established in April 1973 under the Housing Ordinance
- To develop and implement a public housing program to meet the Government's Policy Objective in meeting the housing needs



The Business

- To plan, build, manage and maintain different types of public housing, including rental housing estates, interim housing estates and transit centers
- Also owns and operates some flatted factories and ancillary commercial and other non-domestic facilities
- Manage approximately 200 Housing Estates
- Maintain more than 2000 building blocks or 710,000 public rental flats
- Serve over 2 million tenants



Biometric Applications

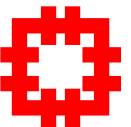
- Palm Biometric for construction sites
- Facial Biometric for security guards and cleansing workers
- Looking for other solutions to serve Applicants and Tenants and Voice Biometric technology was chosen because of :-:
 - Any time , any where
 - Reduced Human Intervention
 - Better user experience



Voice Biometrics Implementation

Initial Project

- Biometric password reset fully implemented
- More than 10,000 users
- Cantonese and English language
- Fully VXML compliant platform
- Pre-project consulting process to identify:
 - Business needs analysis
 - Technology performance

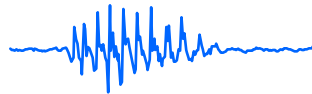


Password Reset Solution

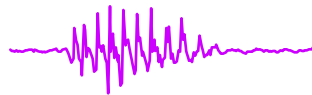
Enrollment Phase



Enrollment speech for each speaker



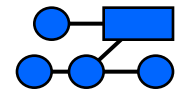
Herman



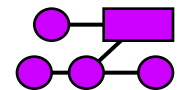
Catherine



Voiceprints (models) for each speaker

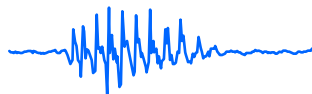


Herman



Catherine

Verification Phase



Takes 10,000+ features for calculation

Claimed identity: Herman

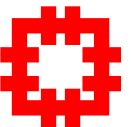


Accepted!
Issue new password.



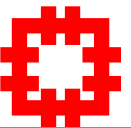
Consideration for Enrolment

- Distribution of Enrolment Personal Identifier (PI) and PIN through internal portal
- Choice of PI
 - Employee number for staff
 - Random generated number for contract staff
- PIN
 - One-time password for enrolment
 - Only valid for 24 hours



Considerations for Privacy

- Voluntary service co-exists with manual procedure by IT Service Desk
- Voice prints bear no personal attributes and are stored in a protected server
- Voice prints will be deleted once the e-housing account is terminated
- No users' speech utterances are stored



Security Considerations

- Authentication Criteria
 - ‘False Acceptance Rate’ is more strictly set than ‘False Reject Rate’ so as to reject impostor attacks
- Knowledge Question as Second Factor Authentication
 - To double check users’ identities
 - Date of Birth
 - Last 4 digits of mobile phone number
 - Year started working for Hong Kong Housing Authority
- ‘Liveness’ test (to reject imposter’s attack using playback device)
- Email notification sent upon successful password reset



Voice Biometrics - the Future

- Maintenance workers
 - Approximately 17,000 subcontractors for estate refurbishment projects
 - Authenticate registered trade workers when arrived at site
 - Report of work under progress
- Authentication for Applicants and Tenants
 - Password reset
 - Application status
 - Appointments



Q&A





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