

FOR IMMEDIATE RELEASE

**UC CARD and Hitachi Conduct Demonstration Experiment to
Enable Safe Cashless Payments
Using Biometric Data Encryption Technology, called “PBI”**
*Verifying the effectiveness and convenience of cashless payments
by finger vein recognition at multiple stores*



Image of cashless payment at stores

Tokyo, December 10, 2019 – UC CARD Co.,Ltd. (“UC CARD”), a member of the Mizuho Financial Group, Inc., and Hitachi, Ltd. (TSE: 6501, “Hitachi”) today announced that they are conducting an experiment to demonstrate safe empty-handed cashless payment (without the need to carry cards, smartphones or other such items), by means of finger vein recognition utilizing Public Biometrics Infrastructure (PBI⁽¹⁾), which encrypts, registers and references biometric data. The experiment began as of December 12, 2019, and is scheduled to run until the end of March 2020.

In the experiment, several hundred UC CARD and Hitachi employees—who have completed user registration procedures linking their credit card numbers with finger vein identification data—make payments at multiple stores, including restaurants that are members of the UC CARD network, using only finger vein recognition. This is the first initiative in Japan to use cashless payments by finger vein recognition linked with credit card numbers at multiple stores.

User registration is possible not only for cards issued by UC CARD itself, but also for

cards issued globally bearing the Visa or Mastercard logos. For the full-scale rollout of this technology, UC CARD and Hitachi will aim to achieve widespread popularization of empty-handed cashless payment services at membership-only hotels and resorts, amusement facilities, fitness gyms, and a range of facilities used by foreign tourists visiting Japan, the number of which is increasing year by year.

In recent years, various initiatives are underway in Japan towards achieving the realization of a cashless society. In its “Cashless Vision” established in April 2018, the Ministry of Economy, Trade and Industry (METI) set the target of increasing the ratio of consumers who use cashless payment nationwide, from the current level of around 20% up to 40% by 2025.

In order to further increase widespread usage of cashless payments moving forward, there is a need to respond to risks such as unauthorized use due to loss or theft of cards, smartphones and other payment media, as well as forgotten IDs, passwords and PIN numbers. There are therefore growing hopes and expectations for biometric authentication as a safer, more convenient means of payment authorization.

As part of the experiment, Hitachi will build a new cloud service-based finger vein authentication system utilizing PBI technology⁽²⁾. This cloud-based system will enable use of the service to begin without the need to build new systems on the store side, simply by installing tablet-type terminals and finger vein authentication equipment at stores.

In the past there have been issues in providing biometric authentication on cloud services due to risks such as the possibility of leakage of users’ biometric data, which is a form of personal information. With this new system, however, PBI is utilized to encrypt, register and reference biometric data in a form that is difficult to restore to its original state, and there is no need to save the biometric data itself on the cloud. Credit card information and encrypted biometric data are also stored separately, and sufficiently enhanced security measures are being implemented from the perspective of preventing data leaks.

In this way, the new system will minimize the burden placed on stores and enable safe, swift, empty-handed cashless payment at multiple stores simply by registering information one time on the user side. It will also offer increased convenience for both stores and users, and help to prevent unauthorized credit card use and identity theft.

During the experiment, UC CARD and Hitachi will make use of payment settlement agency services provided by GMO Payment Gateway, Inc.

Through this demonstrative experiment, UC CARD and Hitachi will aim to validate and research the effectiveness of empty-handed cashless payments by finger vein recognition utilizing PBI, as well as their convenience for consumers and points for future improvement, with a view to a full-scale rollout of the service from the end of March 2021.

Moving forward, UC CARD and Hitachi will continue to contribute to the creation of a safer, more secure and more convenient cashless society through the provision of payment services in a wide variety of fields.

- (1) Public Biometrics Infrastructure (PBI) technology: PBI is a proprietary technology developed by Hitachi, which compensates for fluctuations in vein patterns and other biometric data, in order to extract private keys and generate electronic signatures based on public key encryption. The technology removes the need for key management, which in the past has relied on IC cards and passwords, and facilitates the creation of electronic authentication infrastructure that enables reliable, convenient, low-cost identity verification. Moreover, because biometric data is converted cryptographically—by one-way conversion—into data that is difficult to return to its original state (PBI public keys) for registration and referencing purposes, the original biometric data is not saved anywhere during the process. This enables service providers to minimize the risk of leaks. Since biometric data is subject to fluctuations it had not been possible to obtain the same data every time using existing technologies, which had prevented the generation of encryption keys (which must be unique data).
- (2) The new system utilizes software “Biometric Signature Server” provided by Hitachi Solutions, Ltd. and cloud services provided by Hitachi Systems, Ltd.

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Information contained in this news release is current as of the date of the press announcement, but may be subject to change without prior notice.
