PayPay Corporation

Rotating user interface for payment screen

Design registration: 1708485
Patent: 7105337

User interface that automatically changes orientation to facilitate mobile payment

PayPay Corporation, incorporated in 2018, has provided a cashless payment service, PayPay since October 2018. How well the use of an app spreads depends greatly on functional features and the design of the user interface, so the company releases updates including UI renewals almost weekly. Functionality improvement is achieved through new projects, in addition to updates based on users' feedback collected by customer support centers or posted on SNS. For UI updates, a team consisting of product managers, designers and engineers collaborates to address challenges, proposing ideas, holding discussions, and testing using developers' tools.

Before the release of the rotating UI for the payment screen in September 2020, users had to change the orientation of their smartphones or rotate their wrist when showing their paying amounts to store staff. "This shortcoming had been recognized by our company staff as well as the SNS community, so we started working on this," says Maki Aoyagi, a senior design manager of the company's Design Department. The first idea proposed was a feature to display the payment screen upside down by tapping the "Confirm" button, allowing the store staff to confirm the amount without the need to change the orientation of the device. Although this idea seemed to work well when reducing the idea into a drawing, Aoyagi says, a prototype deployed in a smartphone revealed inconvenience for users, as users may not understand why the screen suddenly turned the other way around. Then, a UI rotating the payment screen by 180 degrees using animation was adopted. The user can input the amount and press the "Confirm" button to start rotation, but rotating too quickly could confuse the user as to the purpose of rotation, and rotating too slowly could be perceived by users and store staff as requiring waiting. The team, in collaboration with engineers, repeatedly did testing to fine-tune the feature to decide the best rotation speed. At first, a tip, "Show the screen to the staff" to communicate to the user the purpose of rotation was added, but as there were no inquiries or complaints by users after the release, this tip was dropped.

The team further discussed how to go back to the input screen to correct the typing error of amounts found after the screen rotation. Aoyagi looks back: "At first, we did not recognize the correction of amounts as an important issue, but we came to realize its importance while doing testing to follow the payment flow." Another purpose of the rotating UI is to prevent the user from accidentally making erroneous payments without correcting the amount. The team finally adopted an icon for returning to the input screen and a feature to return to the input screen by tapping the amount.

Through these trials and errors, the team conducts internal beta tests based on final prototypes of UI updates to fine-tune them before release. As the PayPay app is used across various age groups, "It is difficult to set the target for IU designs. We work hard to find the meeting point every day," Aoyagi says.

The rotating UI design of the payment screen has been protected by a design registration and is also covered by a patent. For UIs that are graphic

images, design registration became available by the 2019 revision of the Design Act, which took effect in April 2020. UIs are vulnerable to imitation as they represent important functions directly affecting user experiences, including functional features, operability and customer satisfaction. Shino Himuro from the Intellectual Property, Legal Department, explains the background for filing a design registration as follows: "Unlike patents, there are no high-level technological requirements for design registrations, so we determined that designs of functional screens, like the user interfaces of a rotating payment screen, would be best protected by the design registration system. The company specifically pays attention to design applications for UI designs, as there are many competitors in this domain and these designs are susceptible to rapid change. "Designs are easily recognized and understood at a glance, so they are attractive to people in and outside the company. We find design registrations to be a valuable way to block our competitors," she said.

To protect the UI designs of the PayPay app released weekly, Aoyagi and Himuro share information concerning development activities at biweekly meetings to work on the protection of unique features of designs. In addition, design registration cases are shared through an intra-company data tool, serving as a tool for designers from the Design Department to propose potential designs for registration and monitoring imitation by competitors.

The company's UIs that continue to progress in pursuit of functionality and good user experience also represent the company's brand, thanks to their unique ideas and designs.