

## FANDOM

## TUI

(Tangible User Interfaces)

## GAME INDUSTRY

CT Hackathon Fall 2022  
13 Dec 2022creating new K-pop fan experiences  
with/through the LIGHTSTICK 응원봉

## - the LIGHTSTICK today

## HOW IT WORKS:

Basic Light Function: LED light, ON and OFF

Hub Remote Control: company-controlled server network communication for multiple lightsticks, mapping individual location according to seat number, through app for fans

Smart Light: Individual light control, sync to MVs, via app

## WHAT IT DOES:

an instrument of fan identification and of fan performance

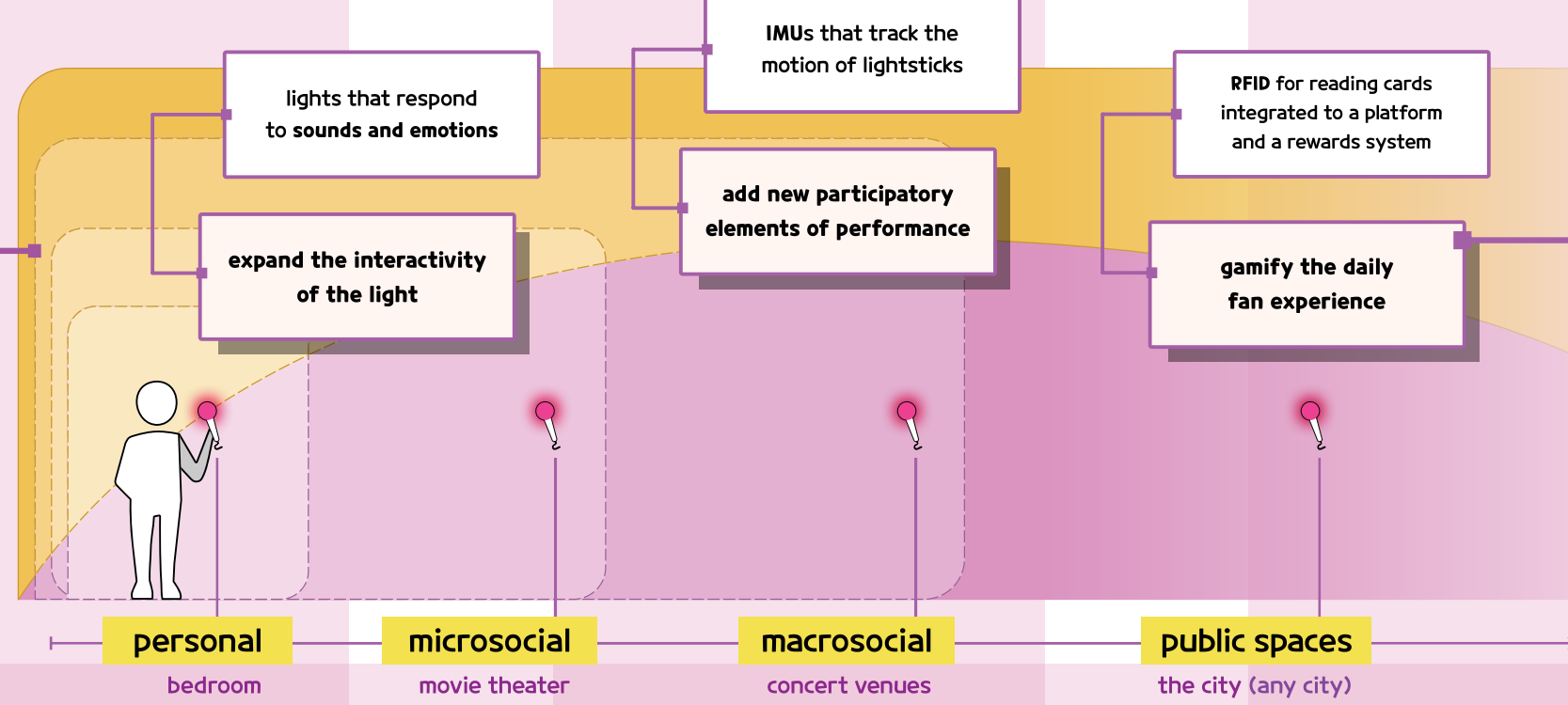
In live performances, it is synced to the music, controlled by the concert staff. It employs fans to provide a visual element/ complement to the soundscape

In large events, such as festivals where many groups perform, it is used to identify fans of different artists

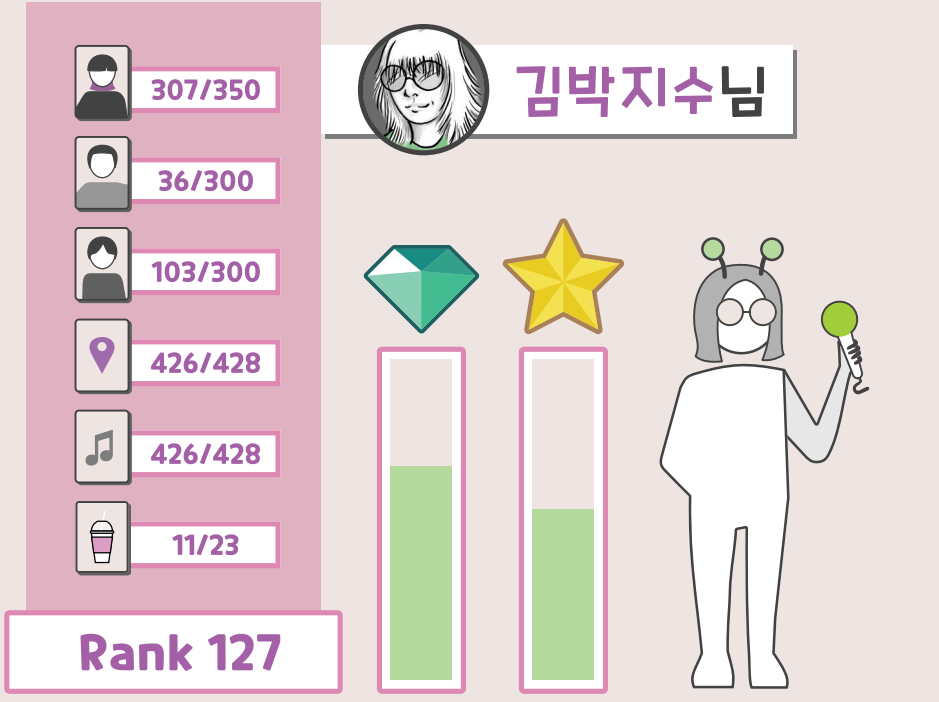
## - ESSENTIAL object

- LOW absolute  
FUNCTIONALITY  
as an object - original function- HIGH attributed  
IMPORTANCE  
for/ due to identification- HIGH aggregate  
VALUE as a symbol  
enforced by the different  
ways fans make use of them  
outside concert venues

The lightstick is a tangible embodiment of the fan experience. It's an element of collective and individual identity/identification, it's a performance tool, and it adds to the aesthetic experience. Even with limited functionality, it occupies a privileged symbolic position across the different **spaces** that make up the complete K-pop fan experience.



## fan profile: Jisoo Kim-Park



Jisoo is a fan of NCT 127 - an **NCTzen**, or **czennie**. Jisoo is also a graduate student from Seoul, she recently started her Master's at KAIST Graduate School of Culture Technology, as a member of the Digital Heritage lab. Suddenly, her schedule got busy and hectic, so she barely has time to travel to go to concerts or other fan gatherings. However, thanks to the lightstick, she can still enjoy her fan life, even without attending distant events. She uses a special fan platform where she can immersively experience virtual concerts, as well as find fan-organized local events to attend. At these events, she collects badges and raise her level, as if being a fan is a game. Fans don't need the lightstick to access the platform, but high-ranked fans with the lightstick can become event organizers and create their own badges. She also uses the platform to organize and grow her collection of NCT goods - when she buys a new album or photocard, she scans them and the platform displays everything she owns on her profile.

## personal context

Jisoo has been waiting for NCT 127's comeback concert and she just could not miss it. But she has 2 projects to present this week. Instead of physically attending the concert, she took a break from work to enjoy a virtual concert in her dorm room. Jisoo connects her lightstick to the app, and her lightstick reacts to the music played in the concert venue. Jisoo really enjoys using the lightstick, but her favorite thing is that she can still enjoy the lights after the concert is over, because the lightstick has sensors that react to the sounds in the room, and they can also sense and react to Jisoo's heartbeat. She lives on KAIST campus and she knows other czennies living there as well, so they sometimes meet to watch music videos or just listen to NCT songs together. By using their lightsticks, even when there's no concert, they can experience a personal concert landscape at the dorms.

## K-popping &gt;&gt; 덕질

## SCENARIOS

of augmented K-popping

## microsocial context

**Microsocial context:** Jisoo loves attending fan-organizes local gatherings and events. She is a big fan of Doyoung, a member of NCT 127, and Doyoung's birthday is approaching, so she wants to celebrate it with other fans. Jisoo's profile on the fan app has a reasonably high rank, so she can use it to find other NCT and Doyoung fans at KAIST, in order to throw a celebrative cupsleeve event at California Bakery, for Doyoung (he is not coming, but it doesn't matter).

But what fun would there be if only a few people came? In order to attract more people, Jisoo mints NFTs for the event. If attendants come to the event and tag their lightstick on Jisoo's lightstick, they can collect the NFT Jisoo has prepared, and embellish their profile with them. From time to time, Jisoo organizes and attends these events. Her profile on the platform is full of the badges and NFTs she collected, and she is proud of it.

Entertainment companies encourage fans to organize and engage local fan gatherings, because being a fan is a lot more about the community than the relationship between the fan and the idol. Interacting and communicating with other fans allow fans to feel a sense of belonging in the fandom. These fandom networks multiply the opportunities to have fun together and enjoy their fan lifestyle.

The **symbolic, aesthetic, performative** and **gamified** roles of the new generation of lightsticks make it a perfect medium for this enhanced K-popping experience. Even for those fans who don't live in big cities, or even those who don't live in Korea at all, their own towns can become a setting for new collective adventures of their ludic fan life.

## expand the functions of the lightstick:

CREATE new functions  
that cover everyday activities  
of fans and fandom lifeenable the augmentation of fan experience  
at different levels of interaction  
through gamification, combining TUI + platformADD new opportunities/  
experiences for the performance  
of fans in the concert landscape

## TUI - Tangible User Interface

Tangible user interface (TUI) is a user interface in which a person interacts with digital information through the physical environment. As a medium to enhance the fandom experience, the lightstick become a new type of tangible user interface for fans to interact with artist during performance and daily life.

## Music Reactive Light

## MIC

The microphone can detect the user's voice and external sounds to understand the user's context and express light. Lighting that reacts to music can be implemented through a microphone.

## Emotion Reactive Light

## PPG

PPG (PhotoPlethysmoGraphy) is a sensing technology that uses a photodiode and LED to measure blood flow changes in blood vessels near the skin. With PPG sensor, it can measure people breathing and heart rate which make lightstick responds to user emotion

## macrosocial context

**Macrosocial context:** One day, Jisoo had this wonderful idea to start to research about enhancing the structural components of concert venues, so that she could attend more concerts in Seoul. On the first day, since it had been a while since she had been to a concert, she got too excited and arrived too early at the venue. Luckily, there was an outdoor arcade where fans can play special games before the concert starts, using their lightsticks. Whatever game she wants to play, she can connect her lightstick to the arcade machines and use her lightstick as a controller. This is actually one of the things she loves the most - in the past, fans only used their lightsticks during the concert, but now there are various uses outside swinging them during the performances. assignment she had during Intro to CT course.

## motion tracking &gt;&gt; bidirectional function

Jisoo learned at KAIST CT that **the same sensors that track her lightstick for the games outside the venue are used to create motion maps for the fan events during the performances.** As soon as she gets into the concert venue, she connects her lightstick with the app, and her lightstick is synchronized with her seat. Just as usual, the lights change according to the music, controlled by the staff. However, during some parts of the concert, the huge screen behind the artists shows a map of the concert hall, and people can see the movement of each independent fan light. Since NCT 127 is so popular these days, the audience is really big, but Jisoo still managed to see what spot on the screen was tracking hers. She thinks it's really nice that her lightstick has this bidirectional characteristic, because she feels like it gives fans a more autonomous role in the concert. She likes it so much that she presented an analysis of this feature for a special assignment for Intro to CT course.

## IMU

IMU is an inertial measurement unit which consists of a gyroscope, accelerometer, geomagnetic sensor. User's motions can be tracked through IMU sensor which help fans to participate more actively in performances and virtual game.

## RFID

RFID(Radio-Frequency Identification) is a method of identifying ID by using radio frequencies. Users and events can be identified and extended to virtualized games through lighting

User/Event Identification

## public spaces - city context

**public spaces - city context:** when she came back to Daejeon, after attending such a fantastic concert, Jisoo thought her life would be boring. But a new amazing feature has been updated to the app and the lightstick, that made Jisoo enjoy even the trivial rounds of the daily lives. One of them is a virtual treasure hunt. To play this game, the players have to wander around the physical world. The hints are given by the idols and the players have to find the virtual treasure. These virtual treasures are only accessible with the lightstick. Once a player discovers and collects the virtual treasure, the fan platform app makes a short announcement that there is a winner of the game. Since Jisoo is a member of Digital Heritage lab, she has a wonderful understanding of the spaces on campus. Thanks to this, Jisoo already won several games and she is on the leaderboard for this month.

KYUNGJIN SEO | LUISA DO AMARAL | YOUNGKIL LEE

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GCTS01 - Prof Jaehong Ahn