USDL
URBAN STUDIES & DESIGN LAB

Seoul National University –

Revamping the Process of Urban Site Documentation

Analyze	**24× faster** than traditional site analysis
Document	**100% more efficient** than traditional report writing
Travel Cost	**83% saving** in travel cost
Deliverable	**8× more comprehensive** data usability

Introduction

Urban Studies and Design Lab (USDL) is a graduate research group at **Seoul National University (SNU)**. It analyzes social, economic, and environmental impacts of the patterns of the built environment and researches ways to make them better through collaborative and comprehensive urban studies for people to live, work and thrive.

30 students from USDL embarked on a challenging mission to conduct a comprehensive site analysis and documentation, encompassing six distinct sites, scattered on the picturesque island of Jeju. Faced with logistical constraints, USDL recognized the need for an innovative solution.

Challenges

Each of the 30 students needed complete context and understanding of all six sites to contribute to the site analysis and conclusions.

The logistics of **physically traversing each site with every student** posed a formidable challenge, considering the diverse locations on Jeju Island. Traveling with 30 students to every site would have been a tremendous burden on budget and time.

The **method of site analysis** was another big challenge. USDL encountered limitations in traditional documentation methods, which relied on photos, videos, hand written notes, sketches and conventional reports. The reliability of the collected sources would have seriously impacted the accuracy of the on-site information because the traditional methods lack spatial context and sense of scale.

Furthermore, **creating practical and usable data output deliverable** was the foremost challenge. Conventional reports with a series of photos and notes extremely limit the scope of understanding each site thoroughly because of lack of geographic information. Most importantly, conventional reports do not provide as much information as available on site to enable virtual exploration.

USDL **recognized the necessity for a more advanced approach to site analysis** to overcome these challenges and expedite the documentation process without compromising the quality and comprehensiveness of the data collected on site.

Cupix's Solution

By leveraging Cupix's cutting-edge digital twin technology, USDL could efficiently and effectively explore and document their on-site experiences.

Ease of Use

One of the primary advantages of Cupix's solution was its remarkable ease of use. **With only a 360-degree camera in hand, teams, split up into 6 groups, could effortlessly walk the sites and simultaneously capture immersive images**. This streamlined approach contrasted sharply with the traditional site documentation methods that demanded substantial time and effort.

AI assisted Processing

Once captured data was uploaded to a server, **it was automatically processed with the Cupix AI engine, replacing the conventional and often subjective process of conventional report writing**. The Cupix AI algorithm ensured the creation of reliable and standardized deliverables, providing students with more time for design and planning. Eliminating human effort not only increased the accuracy of the documentation but also expedited the analysis documenting phase.

Practical & Interoperable Data Generation

The creation of **3D dollhouse models and geolocated 360-degree views provided navigational and measurable perspectives of each site**. These outputs were not only visually engaging but also provided comprehensive spatial contexts for optimal site analysis, both on-site and remote.

Cupix's output is **interoperable with other 3D design softwares such ase Rhino and SketchUp**. The versatility empowered USDL to explore, analyze, and design within a digital space, transcending the limitations of traditional documentation.

> "Cupix offers "a digital repository of our project sites that transcends physical boundaries. The flexibility and freedom provided by Cupix's technology have significantly unleashed the creative potential for both designers and design students, enabling the development of contextually grounded designs directly from the on-site reality."

Justin Lim
Assistant Professor,
USDL, Seoul National University

Outcome

The integration of Cupix's digital twin technology not only addressed the immediate challenges faced by USDL but also revolutionized the way designers engaged with project sites.

> "This virtual exploration not only facilitated comprehensive coverage of all six sites for every participant but also enriched our understanding through comparative analysis."

Justin Lim
Assistant Professor,
USDL, Seoul National University

Analysis Efficiency

Cupix's streamlined approach to site documentation proved to be a game-changer, **capturing data 24 times faster than traditional methods**. The ease of use, requiring only a 360-degree camera and eliminating the need for extensive on-site presence, resulted in a remarkable acceleration of the analysis phase.

Documentation Efficiency

The integration of automated AI processing by Cupix introduced **a 100% improvement in efficiency compared to manual processes**. With no human effort required in the processing phase, USDL experienced a streamlined workflow that not only expedited the site analysis but also ensured consistency and reliability of the deliverables.

Travel Cost Saving

Cupix's virtual exploration approach led to **an impressive 83% reduction in travel costs**. By eliminating the need for physical visits to each site with every student, USDL achieved substantial cost savings related to transportation, accommodation, and other logistical expenses.

Data Usability

Cupix's technology delivered outputs that were **at least 8 times more comprehensive and useful for documentation and analysis than the traditional method**. The creation of 3D dollhouse models and geolocated 360-degree views that were navigational, measurable and interoperable with other design software substantially heightened data context and usability.

Compared to the traditional documentation method, their innovative approach not only overcame the logistical constraints but also facilitated comprehensive coverage of all six sites for every participant. Cupix's technology enabled the documentation of sites in real-time, ensuring that the data remained current, accurate, and measurable.