

Team 4

School Council Election & Voting using Metaverse

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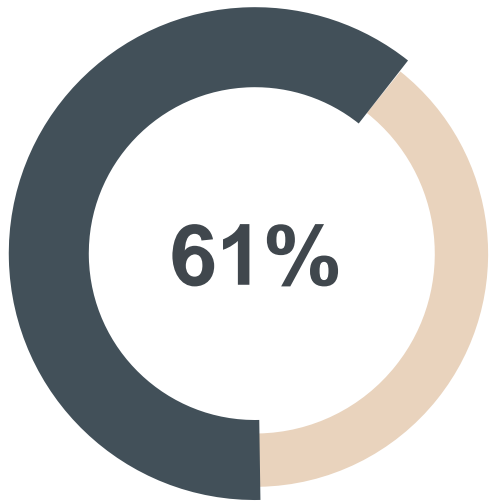
- 1 Overview
- 2 Goals & Methods
- 3 Team & Strategy
- 4 Plan & Effect



| DESTINATION | | DEPARTURE |
|--------------------|------|-----------|
| COFFEE | | |
| DAILY BREW | | |
| CAMP CUP | | 3.00 |
| COLD BREW | | 4.50 |
| ESPRESSO | | 4.00 |
| +WATER | | 3.00 |
| +MILK | MINI | 3.00 |
| +MILK | SML | 3.50 |
| +MILK | MED | 3.50 |
| +MILK | LRG | 4.00 |
| +CHOCOLATE | | 4.50 |
| +ALMOND | | +1.00 |
| CHAI | | +1.00 |
| TEA | | 5.00 |
| SEE SIGNATURE MENU | | 4.00 |
| The WHEELHOUSE | | |

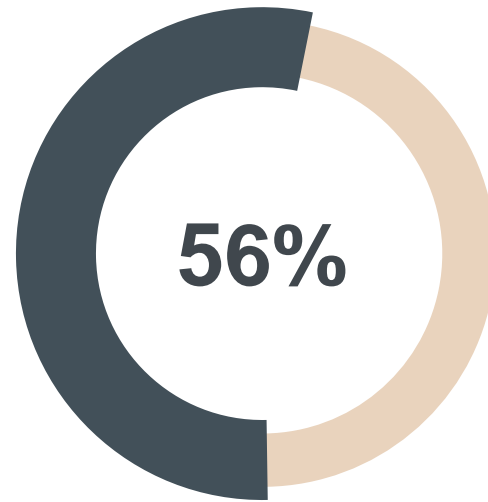
Part 1, Overview

51st Election



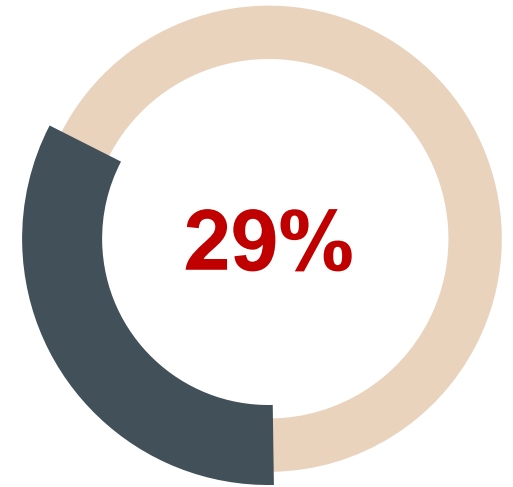
Nov 30, 2018

52nd Election



Nov 29, 2019

53rd Election



Nov 26, 2020

SKKU Voter turnout rates on a all time low

1

Influence of COVID-19

2

Absence of real-time communication

3

High cost of vote

1. COVID-19

| Dorm | 2019.08 | 2020.08 | 2021.08 |
|---------------|---------|---------|---------|
| Ji-Kwan | 3.53 | 3.29 | ALL |
| Shin-Kwan 3/3 | 3.57 | 4.08 | ALL |

Table 1. Grade requirement for dorm admission from 2019 to 2021

More students are staying in their hometown

2. Lack of Real-time Communication



Fig 2. Various methods of contacting the SKKU student council

No real-time communication pre-election

3. High cost of campaign & vote

| Campus | Cost (KRW) |
|------------------------------|------------|
| Humanities & Social Sciences | 3,430,000 |
| Natural Science | 2,400,000 |

Table 2. Cost of campaign for 2016 SKKU student council election

| Usage | Cost (KRW) |
|---------------|------------|
| Voting Booth | 440,000 |
| Staff Payment | 5,000,000 |

Table 3. Cost of vote for 2018 SKKU student council election

Campaigning and voting costs a lot of money

001 >> **The COVID-19 Pandemic**

Large portion of students are staying at hometown
Infection risk during voting
Limits campaign activities

002 >> **Absence of real-time communication**

Lack of communication between candidates and voters
Hard to feedback during debate between candidates
Limitation of election campaign

003 >> **High cost of vote**

Quarantine cost
Polls and personnel expenses
Support fund of election campaign

001 >> The COVID-19 Pandemic

- Large portion of students are staying at hometown
- Infection risk during voting
- Limits campaign activities

002 >> “Untact Election and Voting!”

- Lack of communication between candidates and voters
- Hard to feedback during debate between candidates
- Limitation of election campaign

003 >> High cost of vote

- Quarantine cost
- Polls and personnel expenses
- Support fund of election campaign

A photograph of a wooden desk setup. In the foreground, a silver laptop is open, showing its keyboard. To the left of the laptop is a dark grey mug. In the center of the desk is a white mug filled with dark coffee. To the right of the white mug is a rolled-up notebook with a pen resting on it. The pen is silver and black. In the bottom right corner, a black smartphone lies flat. The background shows a window with a dark frame and a dark grey brick wall.

Part 2, Goals & Methods

1

Easy Entry

2

Easy Communication

3

Easy Voting

1. Easy Entry

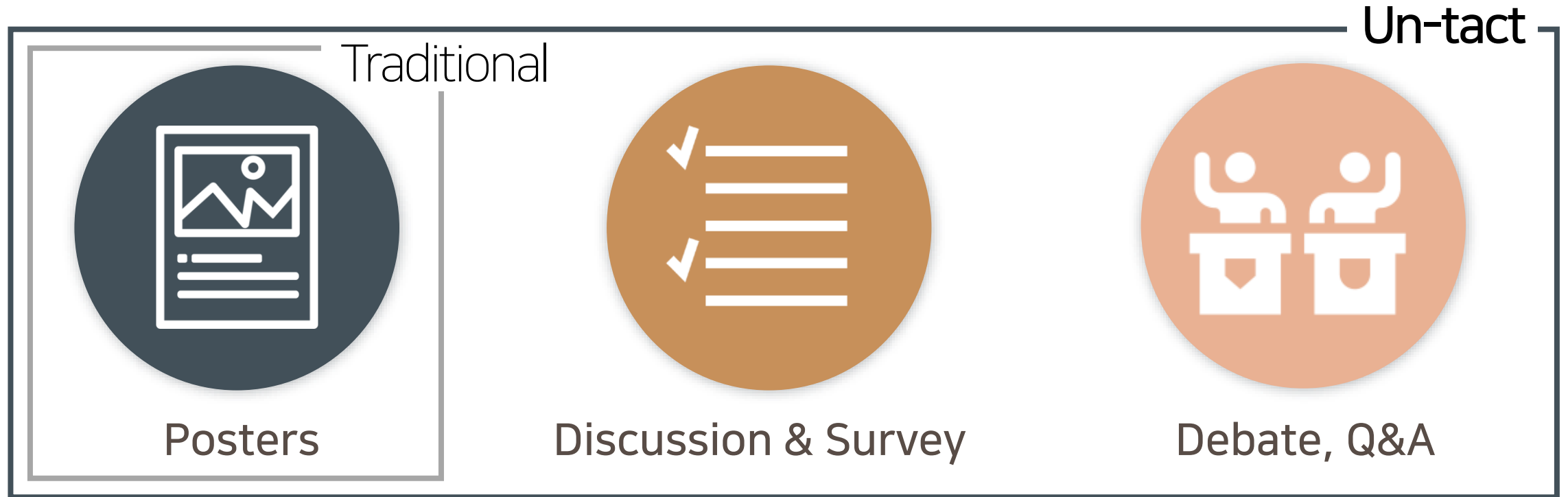
제4조(피선거권의 자격) 회장직에 입후보 할 수 있는자의 자격은 다음과 같다.

1. 본 선거에 선거권을 가진자
2. 입후보 시점기준으로, 등록학기가 2학기 이상이며 잔여학기가 1학기 이상인자
3. 소정의 추천서에 20명 이상의 대의원 서명에 의한 추천서를 받은자

Fig 3. SKKU student council election rule

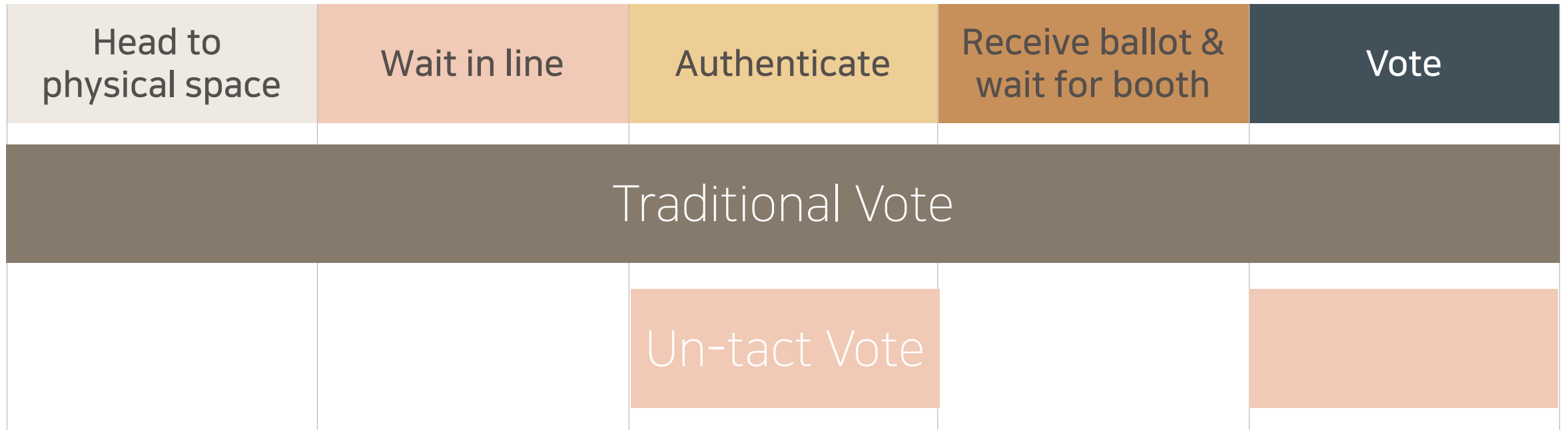
Lower barrier of entry by increasing accessibility

2. Easy Communication



Provide more direct methods of communication

3. Easy Voting



Less time & resource wasted

001 >> **Easy Entry**

Less cost for campaign

Easier process of recommendation and registration

002 >> **Easy Communication**

Visual content exhibition for promotional videos and policy posters

Boards & Surveys where all voters can express their opinions

Real-time communication between candidates and voter

003 >> **Easy Vote**

Voting through a simple authentication process

Less cost for setting up voting booths

| | |
|--------------------|-----------------------|
| Metaverse Platform | VRChat |
| Development Tool | Unity v2019.4.30f1 |
| SDK Version | VRChat SDK3 v2021.3.4 |
| Language | Udon (OPEN ALPHA) |



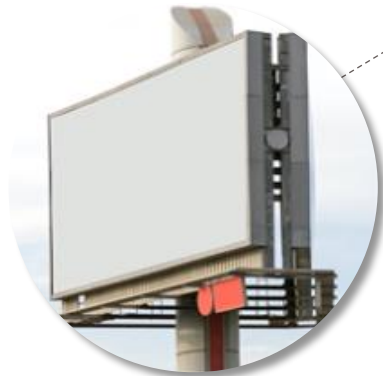
Method – Key Features Summary

| Functions | Features to use SDK / develop | Detail |
|-----------------------------|----------------------------------|---|
| 1 Visual Content Exhibition | Video Streaming and Image Board | <ul style="list-style-type: none">• Video Streaming: Uploaded to Youtube• Image Board: Only image components saved in the world can be shown |
| 2 Vote and Survey | Candidate Selection and Counting | <ul style="list-style-type: none">• Avoid duplicate votes• User authentication |
| 3 Debating | Timer | <ul style="list-style-type: none">• Difficulty in implementing the speech restriction within the VRChat features |
| 4 Board | Editable Bulletin Board | <ul style="list-style-type: none">• Post limiting to avoid overloading the network |

1. Visual Content Exhibition

2D Object

- png, jpg files to the UI image
- Component supported by Unity Engine

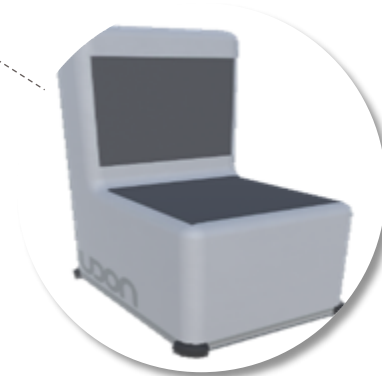


Video Content

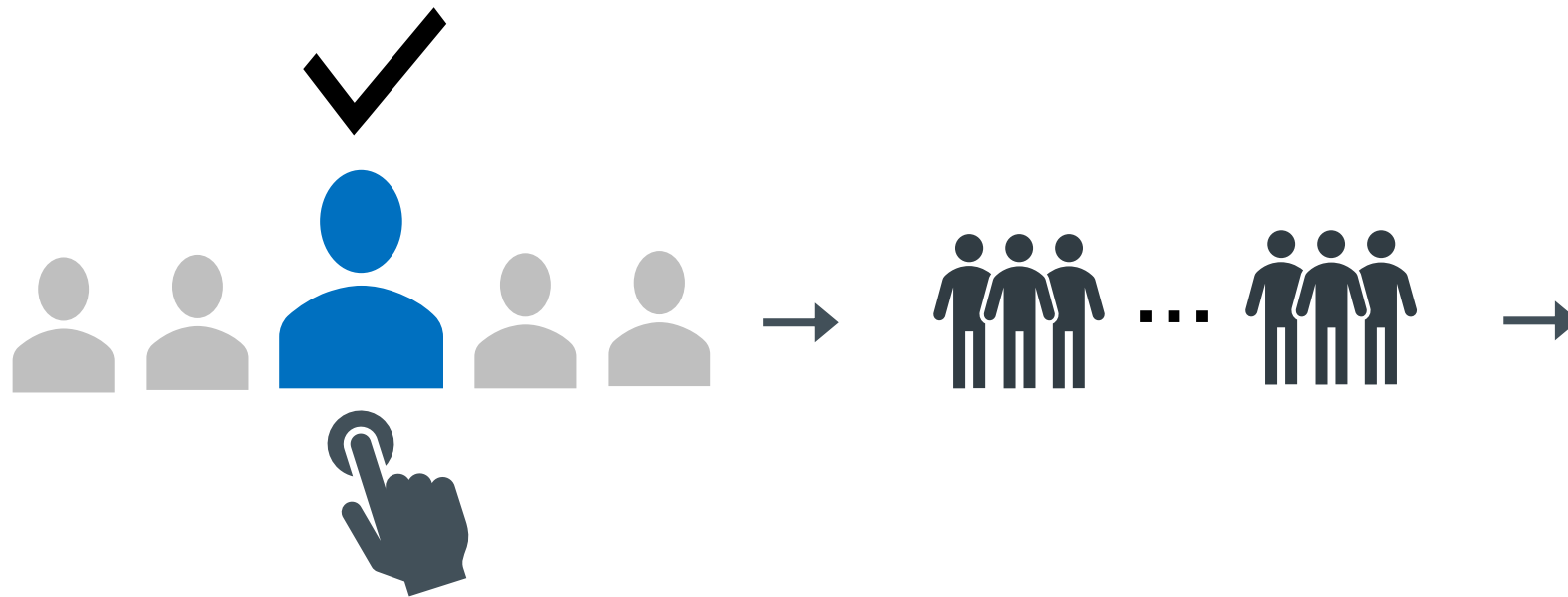
- Using the UdonSyncPlayer Prefabs
- Provided by VRChat SDK

3D Object

- fbx or .obj file to the MeshRenderer
- Component supported by Unity Engine



2. Vote and Survey



Voter Choice

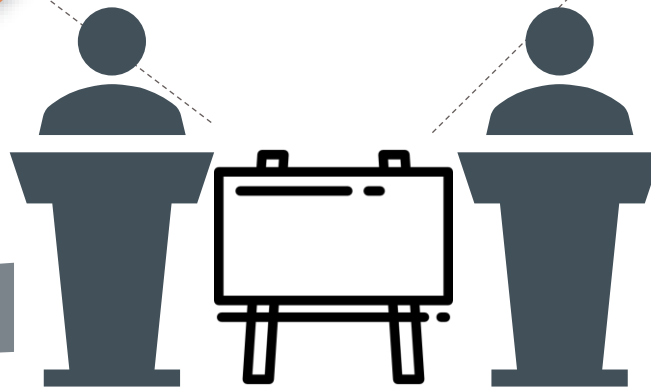


① Vote candidate

② Voting is synchronized
with all users

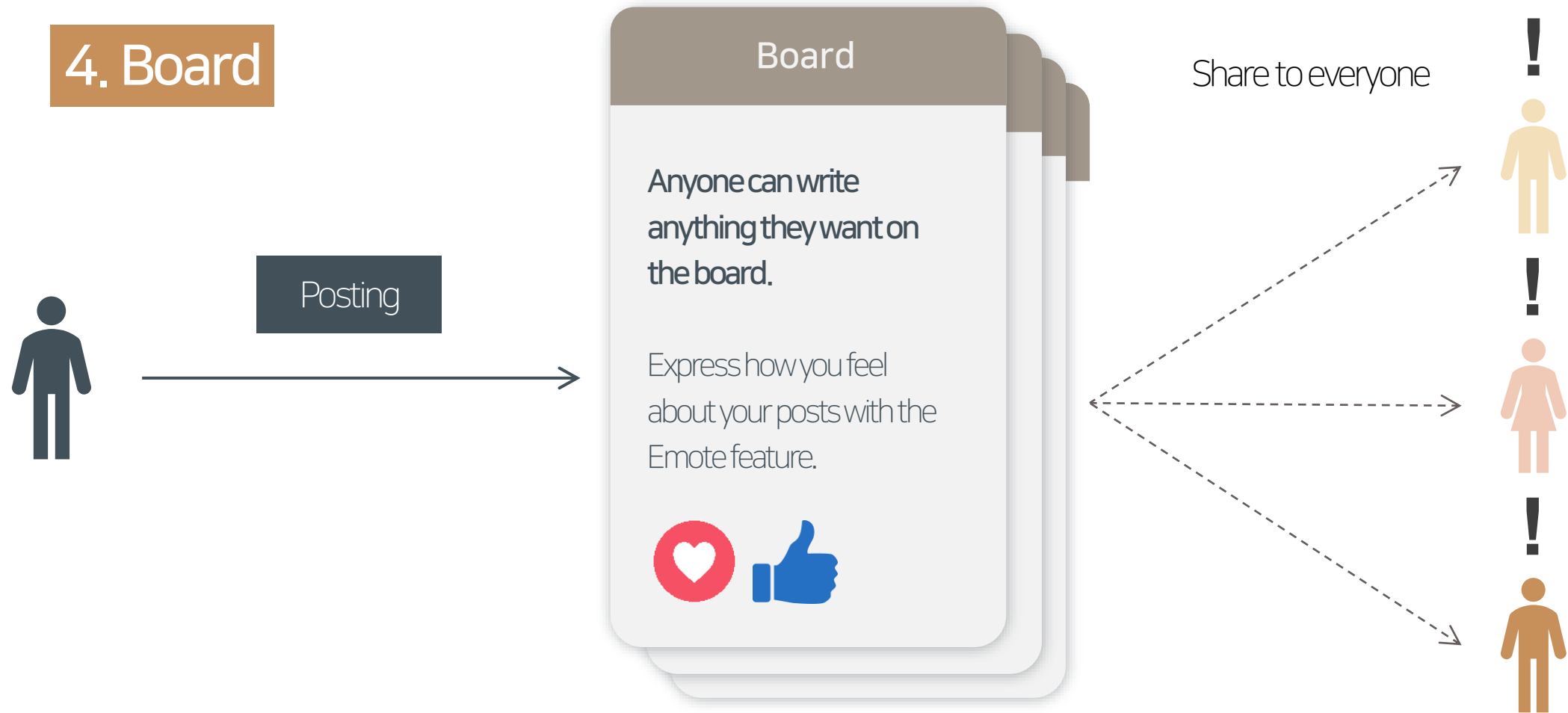
③ UI update
for all users

3. Debating



Realistic debate using various objects such as voice chat, timer, etc.

4. Board



Only the 10 most recently registered posts are displayed

Part 3,
Team & Strategy



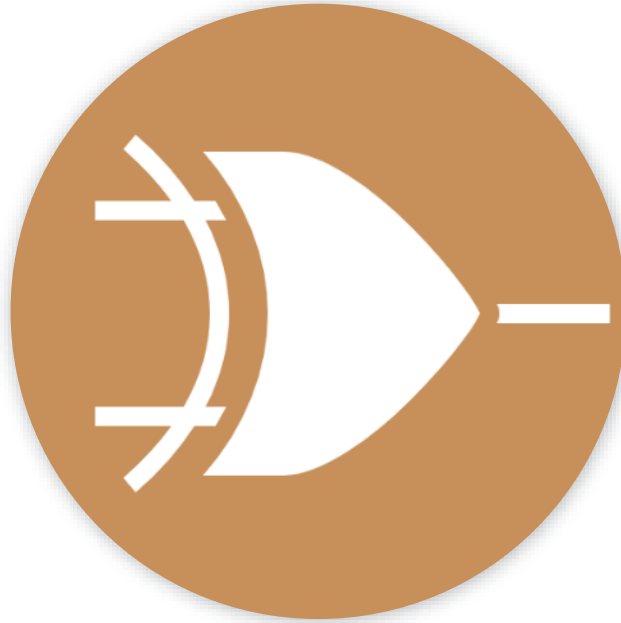
Part 3, Team & Strategy

World Design



Daeun Lim
Hojin Jeon
Soyoung Park

Logic



Jungin Lee
Jiho Jang

Documentation



Seungji Lee
Gwanjong Park

Part 3,

Team & Strategy

| 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---------------------------|--------------------|-----------------------------------|---|---|--------------------------|----|-------------|---------------------------|----|----|
| Requirement Specification | | | | | | | | | | |
| | Component Analysis | | | | | | | | | |
| | | Design Front & Back-End Structure | | | | | | | | |
| | | | | | Structure Refinement | | | | | |
| | | | | | Component Implementation | | | | | |
| | | | | | | | Integration | | | |
| | | | | | | | | Verification & Validation | | |

Part 3, Team & Strategy

| Evaluation | Quantative | Importance |
|-------------------------------|------------|------------|
| All function speed | ~5 sec | 10% |
| Reliable real-time connection | - | 30% |
| High accessibility | - | 30% |
| Security | - | 30% |

Provide a reliable, secure, and accessible system

The background of the slide is a photograph of a brick wall. The bricks are reddish-brown and arranged in a traditional pattern. The surface of the wall is heavily textured, with a layer of material (possibly plaster or paint) that is peeling and flaking away, revealing the underlying bricks and mortar. The lighting is dramatic, with strong shadows and highlights that emphasize the rough, weathered texture of the wall.

Part 4, Plan & Effect

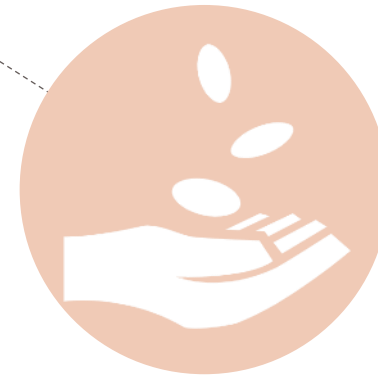
Better Communication

- Interaction between candidates and voters
- Real-time communication
- Policy proposal by voters



Increase Turnout

- Better accessibility
- Faster vote
- Simple certification



Less Cost

- Less vote cost
- Less campaign cost
- No quarantine cost



Thank You