

Enabling remote participation and coproduction of events

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Interaction Design

IDC, IIT Bombay

Flow

- Abstract
- Problems
- Data Collection
- Project Brief
- Human Connector Platform
- Scenario
- Process
- User Testing
- Future Directions

Abstract

Many people continue to be isolated and excluded from participating in live events and festivals due to factors such as mobility, cost, health, time etc.



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Current media platforms available are one-way and do not include small events, such as school football matches and small concerts.



<http://www.flickr.com/photos/56755410@N00/2458143663/in/photolist-4KdCti-4LQknW-4MaeBj-4MBZZt-4SNxit-5ndh4f-5ryMD9-5sa1vK-5zfoXW-5Djy4D-5Lt7LP-5Lt7Q2-5Lt7V8-5Lt7Xi-5Lt7Z8-5Lt81H-5Lt85T-5LxndW-5Lxnh5-5Lxnt5-5LxnWy-68vu5L-6AMg2F-6FYoc-6G3EJG-6G6IRf-6HU5xW-6WUSnm-77bVjV-77bVwK-77bVET-77bWaz-77bWot-77bWwV-77bXce-77bXv8-77fQZS-77fRnm-77fRvb-77fSbY-77fSjq-77fSBb-77fSUQ-77fTbq-77fTiA-77fTrh-77fTyC-7cSmt0-7pL97b-7qrDri-7sDKZf>

Abstract

Current media platforms available are one-way and do not include small events, such as school football matches and small concerts.

Such events are often very meaningful to people especially if they have a loved one participating.



<http://www.flickr.com/photos/56755410@N00/2458143663/in/photolist-4KdCti-4LQknW-4MaeBj-4MBZZt-4SNxit-5ndh4f-5ryMD9-5sa1vK-5zfoXW-5Djy4D-5Lt7LP-5Lt7Q2-5Lt7V8-5Lt7Xi-5Lt7Z8-5Lt81H-5Lt85T-5LxnDW-5LxnH5-5LxnT5-5LxnWy-68vu5L-6AMg2F-6FYyoc-6G3EJG-6G6IRf-6HU5xW-6WUSnm-77bVjV-77bVwK-77bVET-77bWaz-77bWot-77bWwV-77bXce-77bXv8-77fQZS-77fRnm-77fRvb-77fSbY-77fSjq-77fSBb-77fSUQ-77fTbq-77fTiA-77fTrh-77fTyC-7cSmt0-7pL97b-7qrDri-7sDKZf>

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Human Connector platform crowdsources content from people and make it available to everyone. By this, people will be able to attend an event live or schedule it later.

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Human Connector platform crowdsources content from people and make it available to everyone. By this, people will be able to attend an event live or schedule it later.

This platform also helps in organizing an event by giving framework to organizers.

Based on Geovid technology, it is capable of finding field of view, direction and position of video footage.

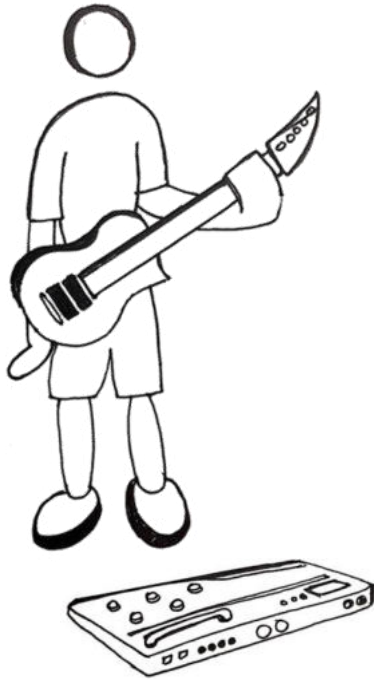
Problem Scenario



Rohit, 16

A musician, who is first time out to perform

Problem Scenario



He never performed anywhere without his family before. His family couldn't accompany him because of some problems.

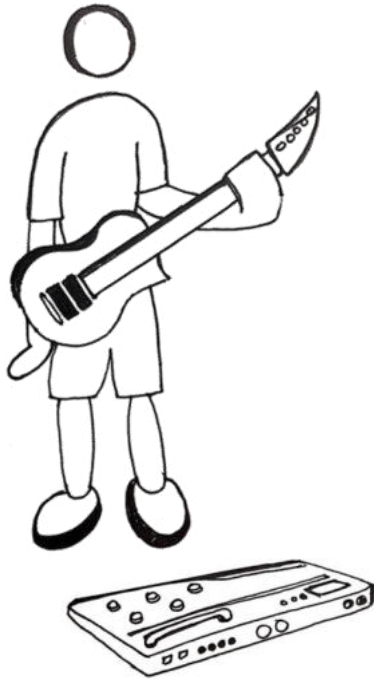
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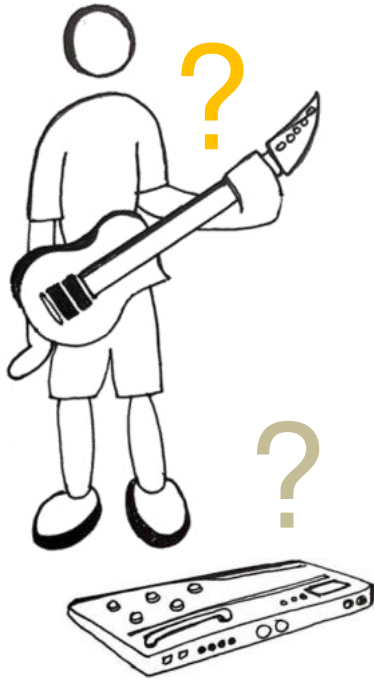
Problem can be related to, Healthy, Mobility, Cost, Personal, Time etc

Problem Scenario



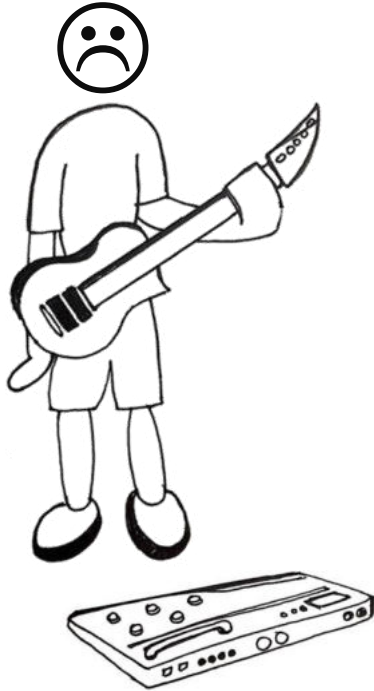
Because it is his first live performance, he wants assistance from one of his friend, but he couldn't come with him

Problem Scenario



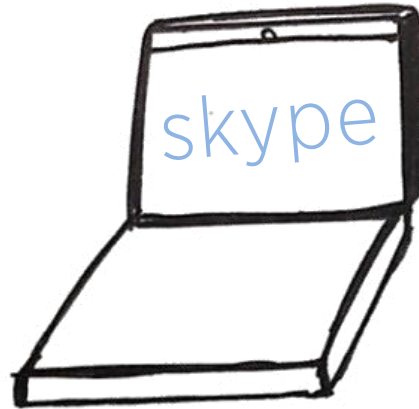
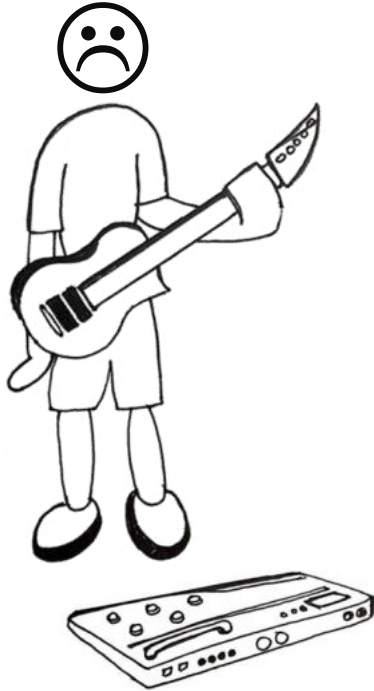
He is unsure about some connections and settings, and needs help of his friend

Problem Scenario



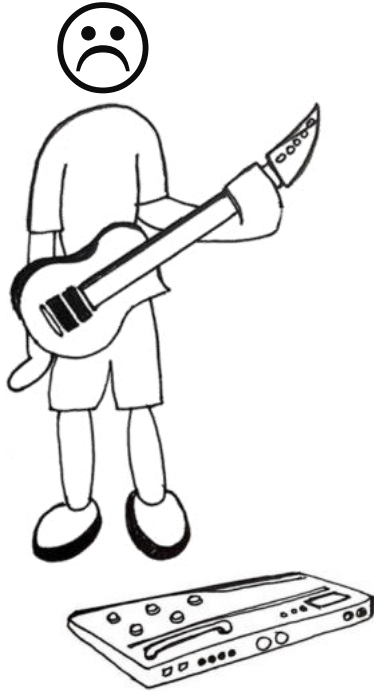
Because this is his first event outside, he emotionally wants his family to be near him and see him performing

Problem Scenario

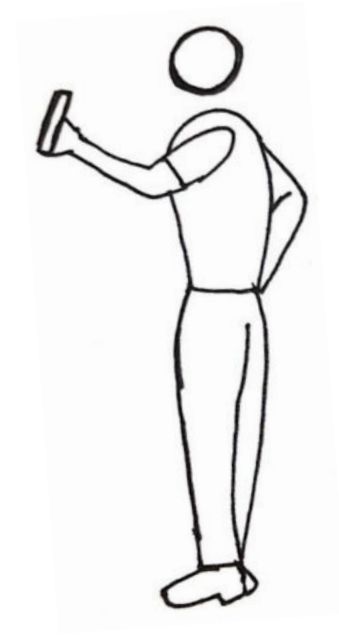


Skype and telephone call seems to be inappropriate choices at that situation

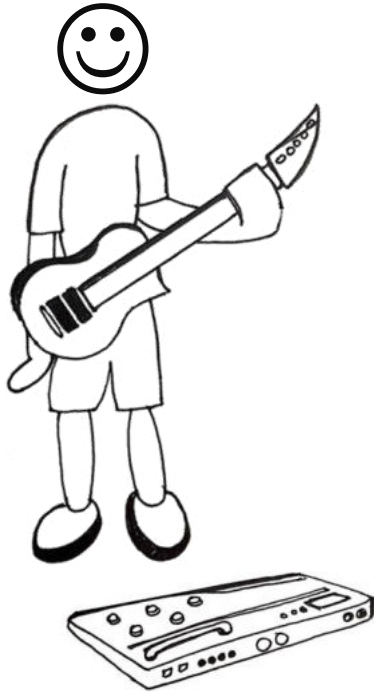
Problem Scenario



Because it will take someone
to take care of it



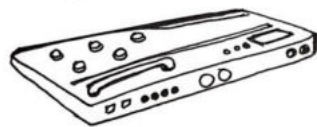
Problem Scenario



He wants his family to see him somehow performing and get assistance from his friend at the same time, WITHOUT anyone's help.



Participant



Event/Concert



Remote
Participant
(XYZ Place)



Spectators
(Home)

Problems

- As Rohit is performing, it is practically not possible for him to capture visual/audio of himself while performing.
- If seen from a broader perspective, families might want to attend other important events too, such as Father's cousin's marriage, Mother's get-together event etc. (Not just concerts)



Problems

- What if even after knowing the schedule of event, you are forced to miss an event because you have other priorities.
- What if family doesn't even get to know about the events which they wanted to attend!
- If you like some specific event and don't want to miss similar kind of event, what would you do?



Data Collection

Data Collections

Analyzing Events

+

Talking to people attending Events

What is an Event?

“An event can be described as a public assembly for the purpose of celebration, education, marketing or reunion. Events can be classified on the basis of their size, type and context.”



Classification of Events

- 1) Social / life-cycle events
- 2) Education and career events
- 3) Sports events
- 4) Entertainment events
- 5) Political events
- 6) Corporate events
- 7) Religious events
- 8) Fund raising/ cause related events

(According to eventeducation.com)

Events are classified differently in different contexts and hence there is no standard classification of events



Documenting Events

- Rock-im-Park : It is a multiday music festival happening annually in Nurnberg, Germany.
- IDC Open Air, it is a small scale DIY event by students of IDC, IIT Bombay with no fixed frequency.
- Mood Indigo : Annual cultural festival of IIT Bombay
- Street Cricket (Galli Cricket)
- Spaced Out: A DIY live musical event by students of SIES Sion
- Techfest : Annual Technical festival of IIT Bombay
- Parkway Drive Open Air: A small scale concert which was headlined by an Australian band called Parkway Drive.



Events



User Studies

Talking to people is also very important when you have to get insights. A total of 9 people were interviewed.

- 1. How frequently do you attend events?*
- 2. What kind of event do you really like attending?*
- 3. Do you have any experience of attending live events?*
- 4. Can you specify some of the recent events attended by you? "Events" can be of any type like Family, business, music/literature/film festivals etc.*
- 5. How do you get to know about which all events are happening around you? (Would be really good if you try to make it as exhaustive as possible)*

Etc...

The Hidden Dimension

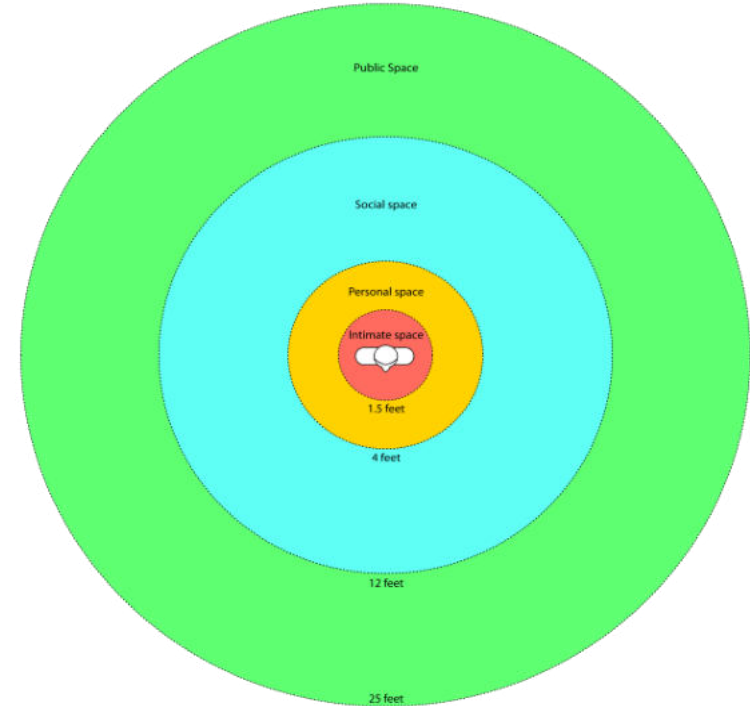
- Book by Edward T. Hall
- Talked about Proxemics
- “The study of set measurable distances between people as they interact’ is called proxemics.
- Recommended by Guide Prof. Ravi Poovaiah.

Intimate Space is 0 – 1.5 feet.

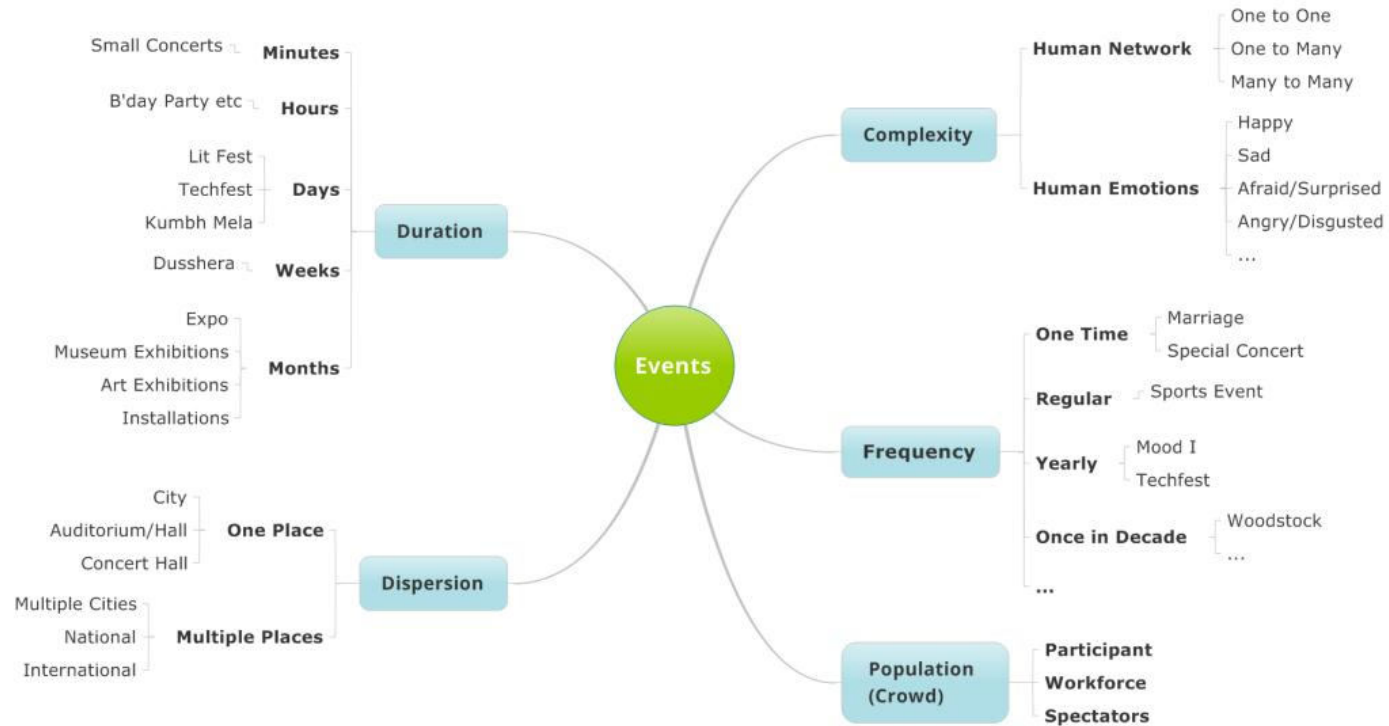
Personal Space is 1.5 – 4 feet.

Social Space is 4 - 12 feet and,

Public Space is 12 – 25 feet.



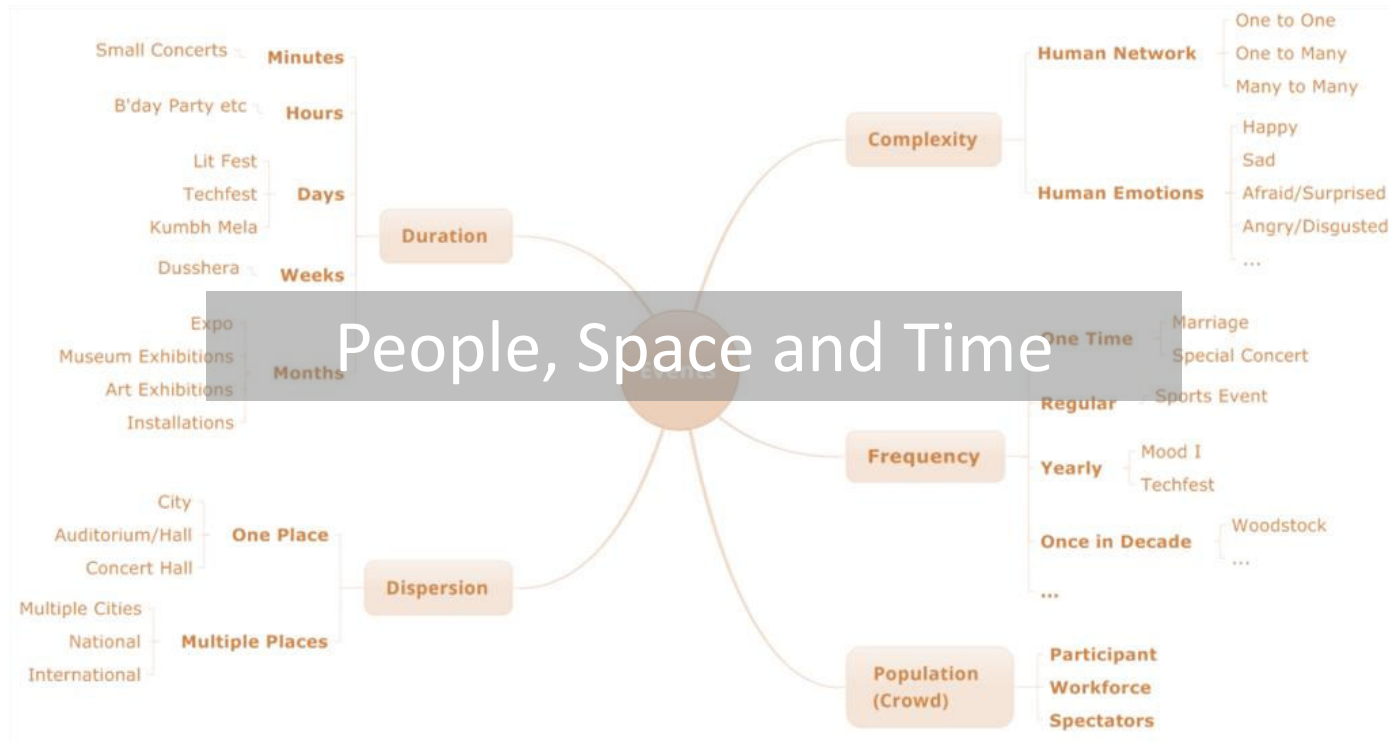
Classification of Events



Classification of Events

Event	Event Type		Complexion	Frequency	Dispersion	Duration	Population
	Relative	Absolute					
School Hockey Tournament	Small Public	Small	Single Event combined with cultural programs	Yearly /Half Yearly Tournament	Single Competition Venue	3-4 Days	Medium/Low
Mood Indigo/Techfest	Big Public/Big Personal	Collective	Grp of events that run simultaneously with cultural program	Yearly Festival	Different venue for different competitions	3-4 Days	High/Medium
Kumbh Mela	Big Public/Big Personal/Big Intimate/Big Private	Collective	Grp of events that run simultaneously with cultural program	Irregular Frequency	Different venue for different events		Very High
Birthday Event	Small Personal/Small Public/Med Personal/Med Public/Small Private	Small/Medium	Single Event	Yearly	Single event at one venue	Few minutes to 1 Day	Medium/Low
Art Exhibition	Med Public/Med Personal/Small Public	Medium/Small	Single Event	Irregular Frequency	Single/Multiple Venue	Held over a number of weeks or months	Medium/Low
Rock Concert	Big Public	Collective	Grp of events that run simultaneously	Irregular Frequency	Multiple Venue	2-3 Day event	Very High/High/Medium
Ram Navami	Small/Med Public/Personal	Medium/Small	Single Event	Yearly	Single Venue	9-10 Day event	Medium/Low

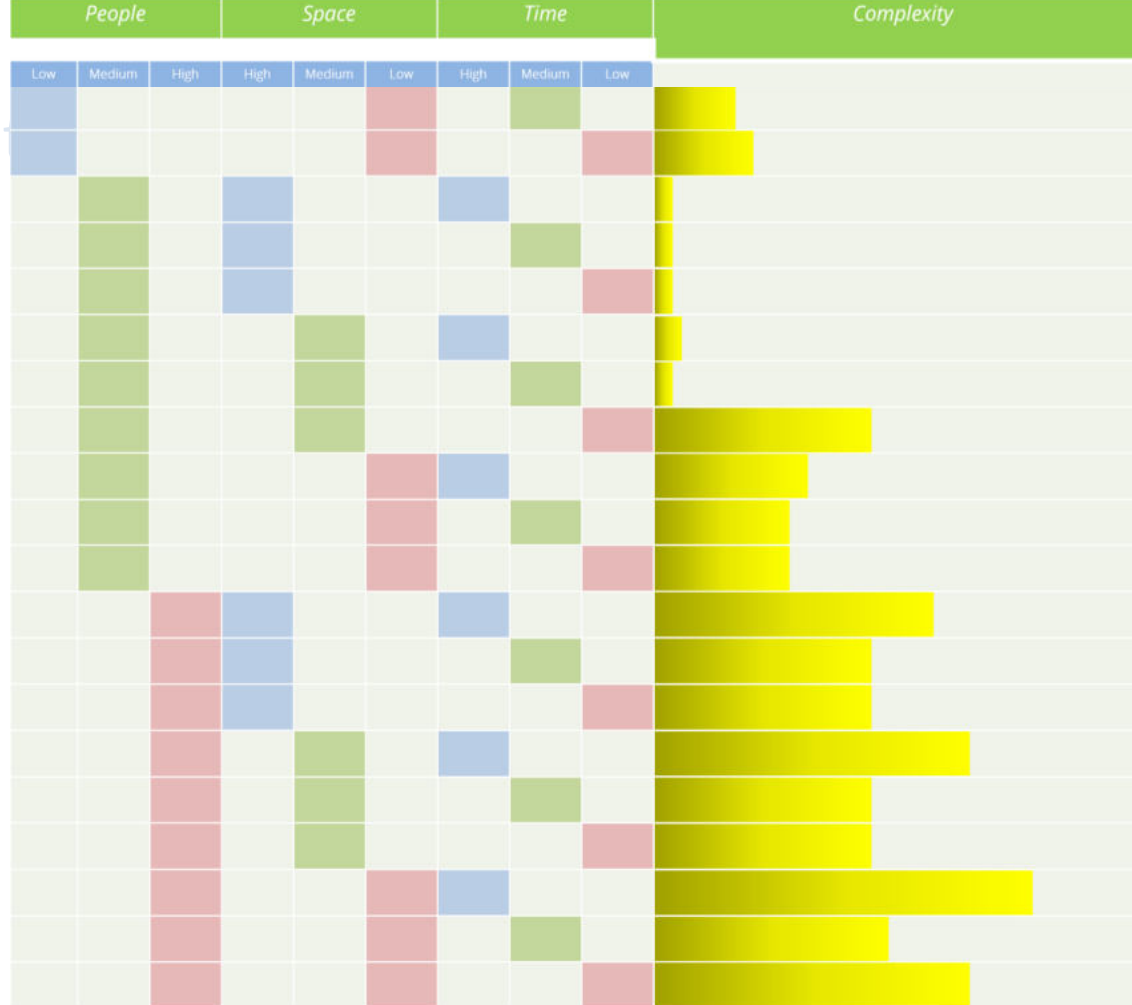
Classification of Events



Classification of Events

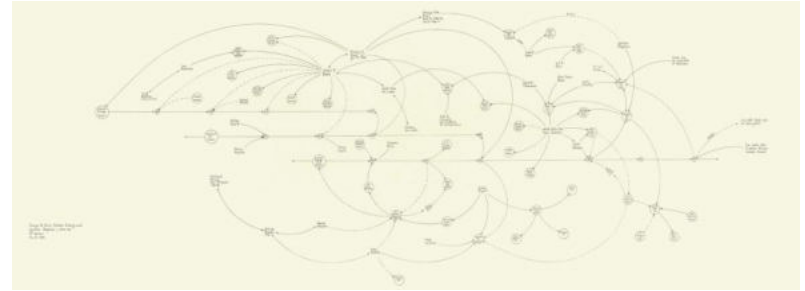
[illegible]

Classification



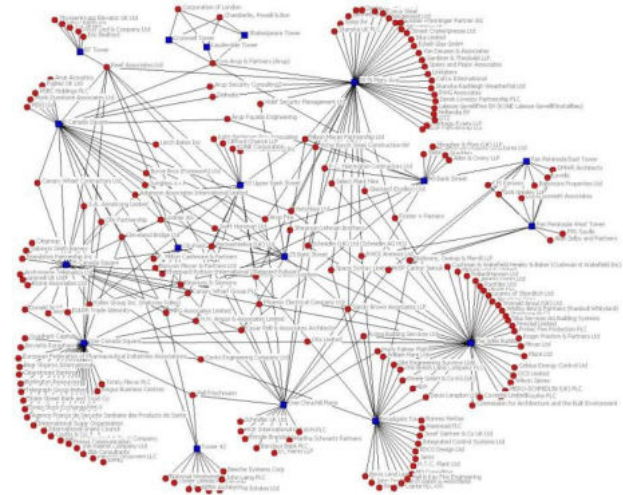
Understanding Human Networks in Events

- Suggested by Dr. Ajanta Sen to make Network Diagram of events
- Came across Mark Lombardi's Sociograms's book
- Sociograms gave me a different vision to look at events from a zoomed out view.



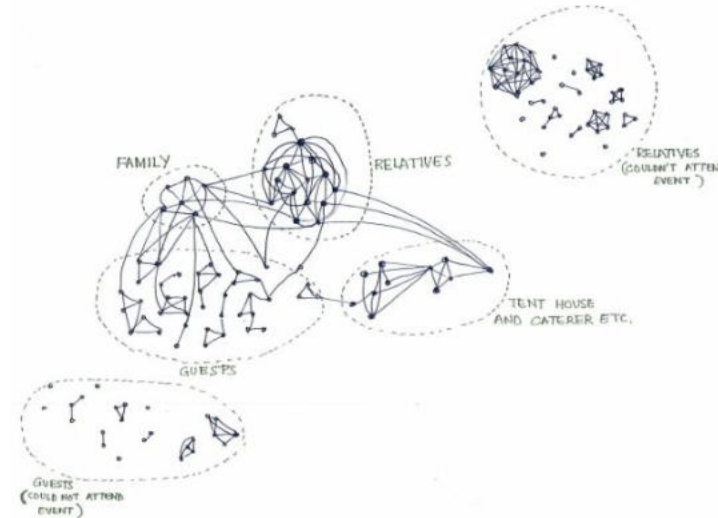
Understanding Human Networks in Events

- **What is a Network Diagram:** Network Diagrams are very common to depict nodes and connections in the field of computer networks.
- Can we identify such networks in human connection in context of events?



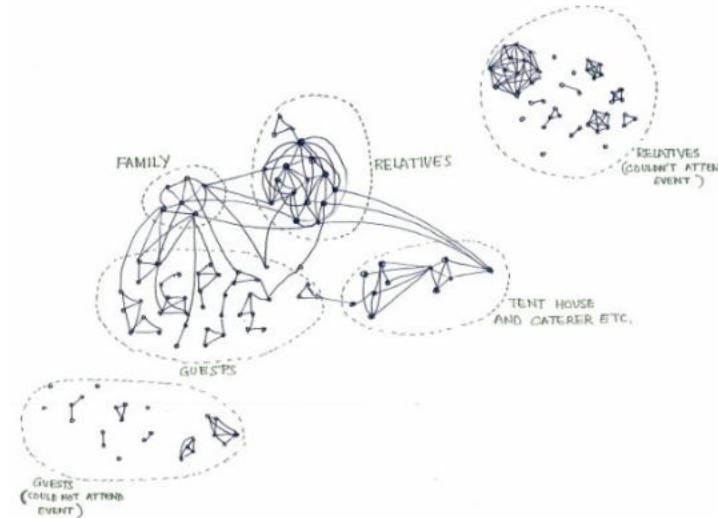
Understanding Human Networks in Events

- Family Event
- TED Talk
- Street Cricket/ Gali Cricket
- Ram Leela/ Ramlila
- Holi
- Rock-im-Park
- Techfest



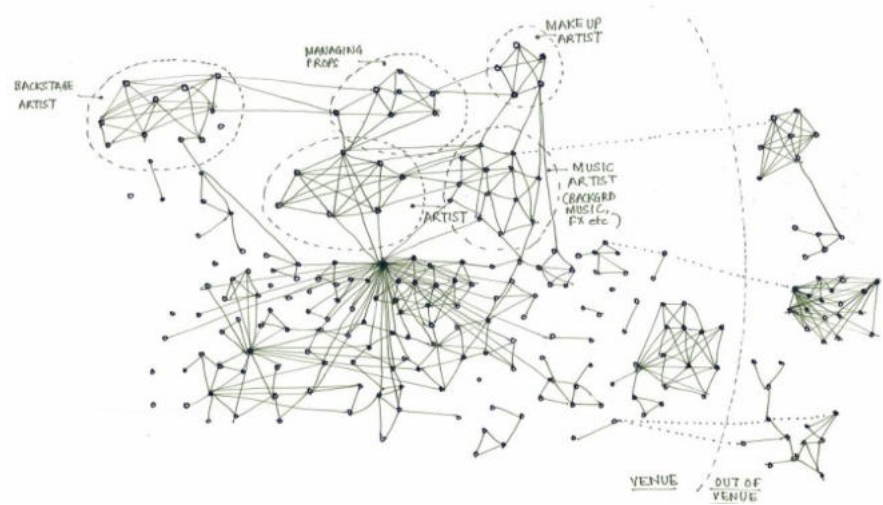
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-
- Also collected data of Medias involved, Merit/Demerit, Need Gaps and Problem Opportunities of each cluster of event.



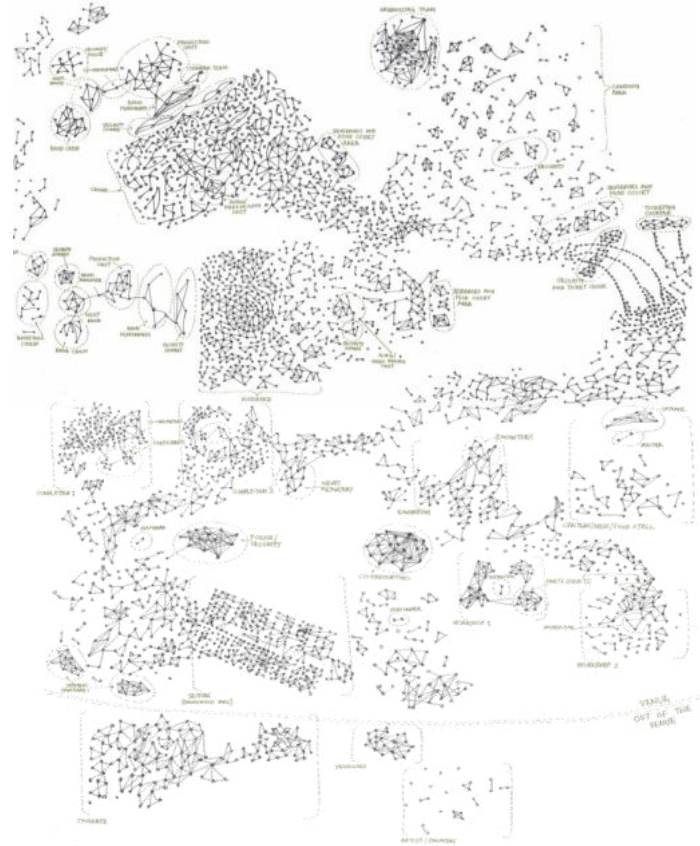
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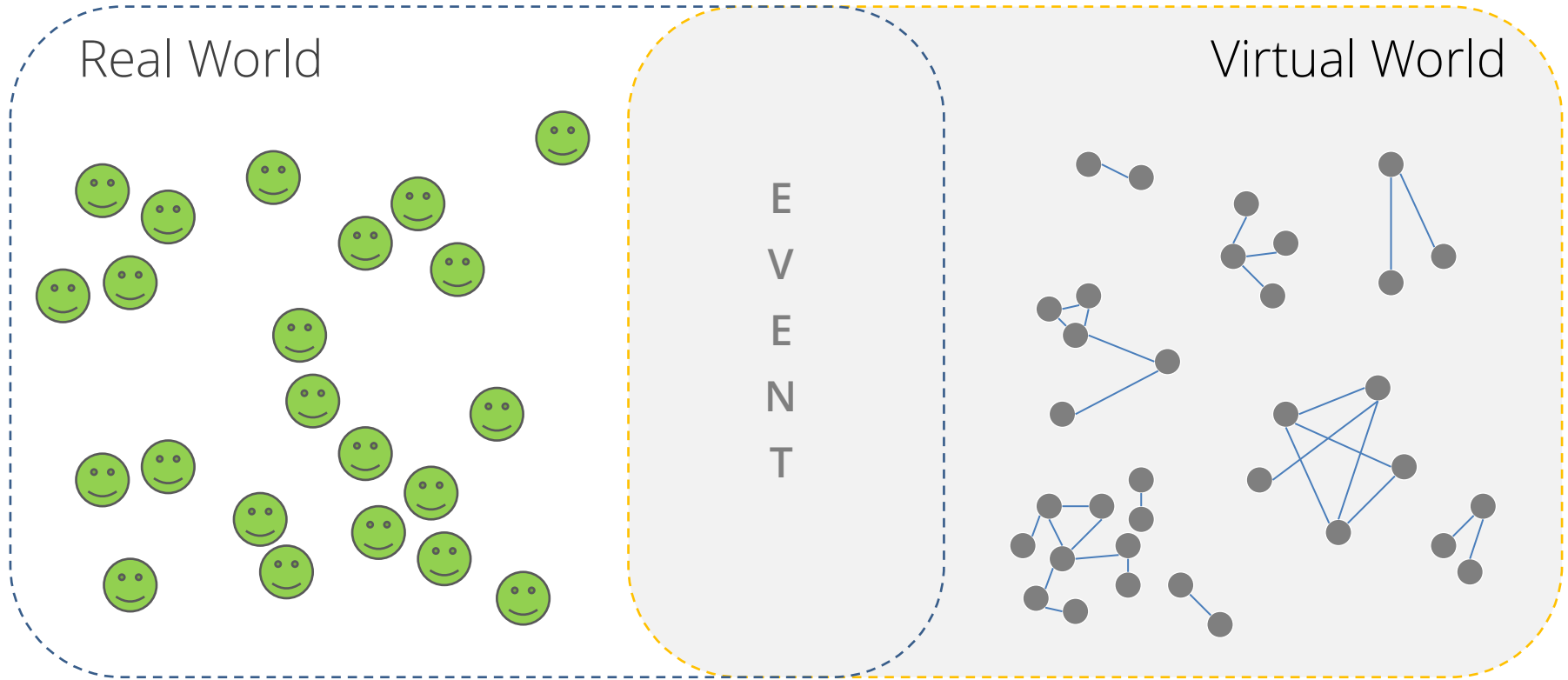


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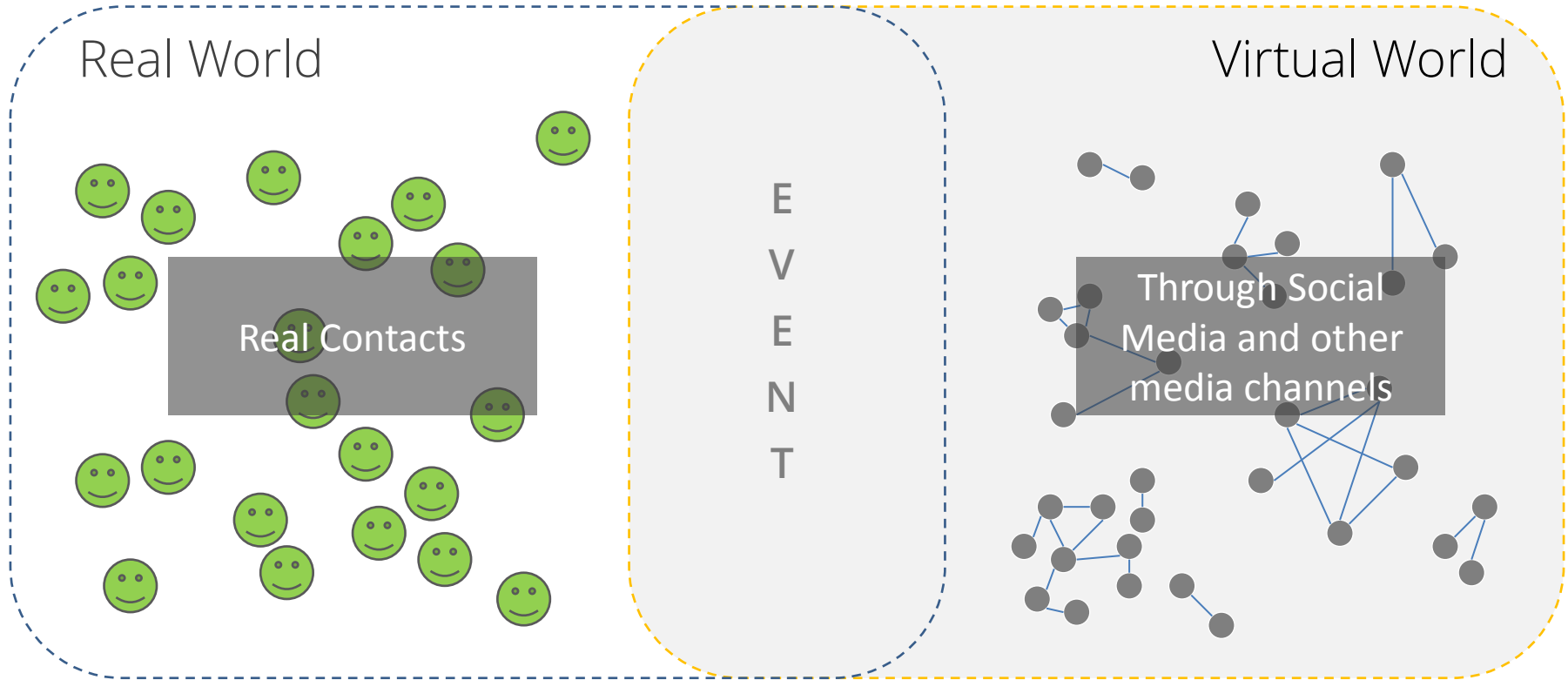
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These networks exist in both real and virtual world



These networks exist in both real and virtual world



Need Gaps

- Some families are not much experienced in organizing events, Can we tell them how to do it?
- Not attending important personal events often result in bad relations.
- People with low/no budget can't organize events like TED, Concerts etc easily.
- Economically challenged people can't afford to go to expensive ticket based events.
- Some people despite of reaching venue if miss to enter inside the venue, feel really bad as even after being next to where event is happening they can't see what's happening inside quickly.



Need Gaps

- Some events are very sudden and not scheduled. Due to this, it doesn't reach wider audience.
- Good events require "Advertisement" so that it can reach people it is meant for, and "Advertisements" require "Money".
- If event gets very crowded, "view obstruction" is a problem.
- Venues are becoming expensive day by day, this is resulting in events seeing huge losses / no profit.



Problem Opportunities

- Bringing those relatives/families/friends together who could not attend event.
- Giving framework to organize events so that it becomes easy for anyone to organize events.
- Two way multicasting/broadcasting event to remote attendees allowing them to interact with each other.
- Trigger starting events automatically which are scheduled.
- Making local events available to people who want to attend them but are sitting somewhere far.
- Locally broadcasting/multicasting a completely mixed event (with different camera angles) resulting in crowdsourced local channels.



Project Brief

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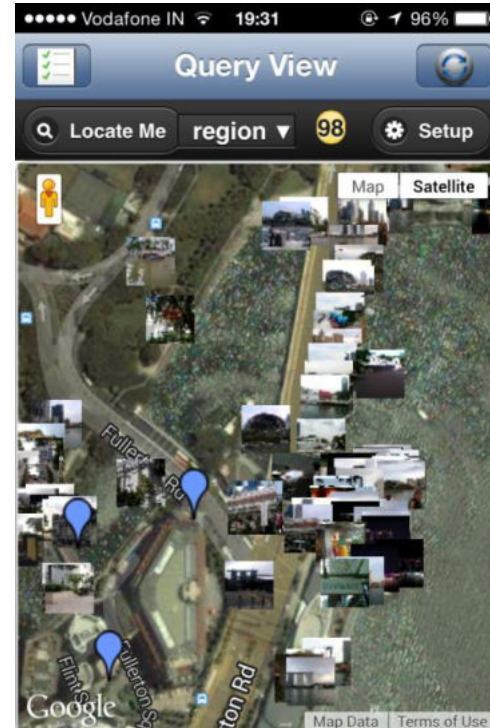
- Designing a platform through which,
 1. People can attend events remotely,
 2. Explore and search for events,
 3. It becomes easier to organize an event
- Platform should be focussing on small scale events with less complexity of People, Space and Time; but should be open enough to accommodate any kind of event and can be scaled too.

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- Project should also be making use of Geovid technology.

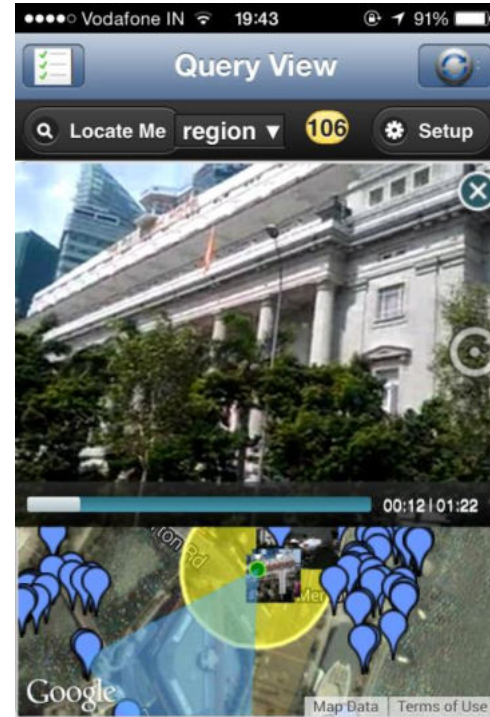
Geovid Application

- It explores the concept of sensor-rich video tagging.
- Specifically, recorded videos are tagged with a continuous stream of extended geographic properties that relate to the camera scenes.



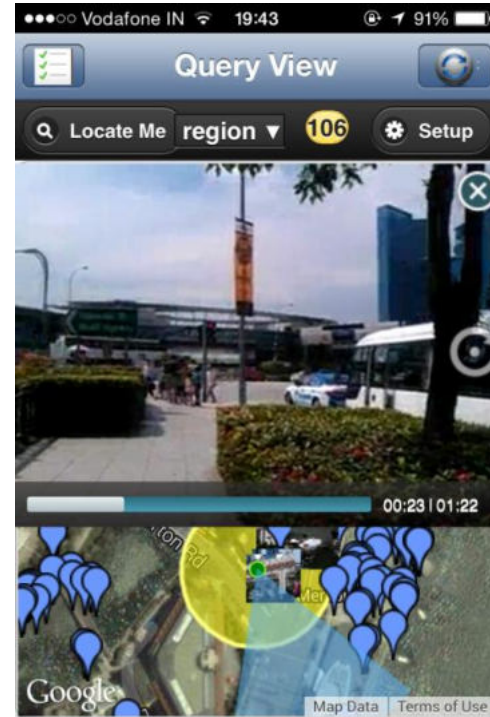
Geovid Application

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- Specifically, recorded videos are tagged with a continuous stream of extended geographic properties that relate to the camera scenes.
- Advanced searches, such as directional and surround queries, can be executed.
- Geovid puts location stamp over the videos, hence making them geo aware. Not only location, Geolocation also finds out the orientation and field of those videos mapping them real-time in maps.



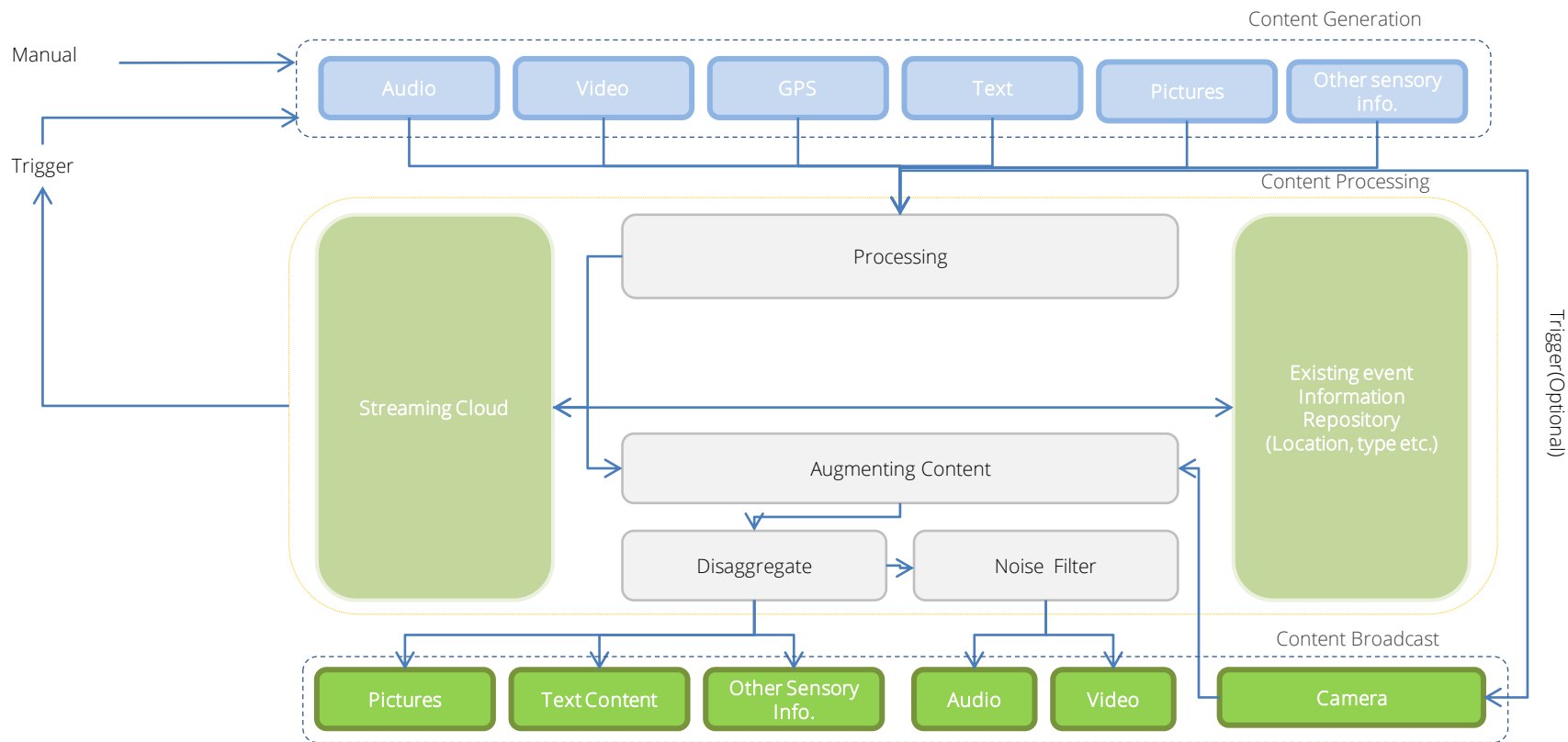
Geovid Application

- As you move around an area, it will store your geo locations and directions in runtime.
- This app is aware of your movements, it knows when you are. It captures,
 - Accelerometer
 - Magnetometer
 - Gyro sensor
 - Thermal Sensor
 - Light Sensor
- (<https://www.youtube.com/watch?v=m0lfxUvpSjo>)



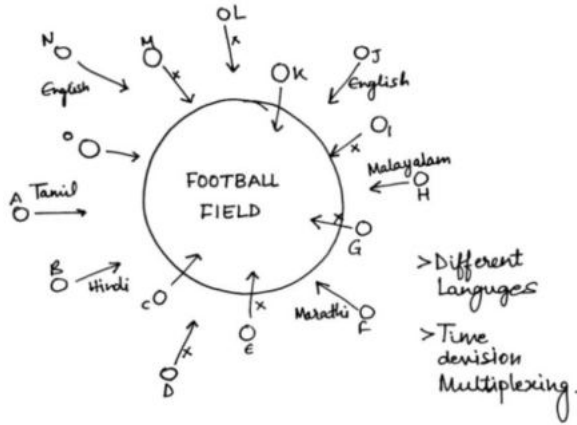
Initial Design Ideas

(Service - Backbone)

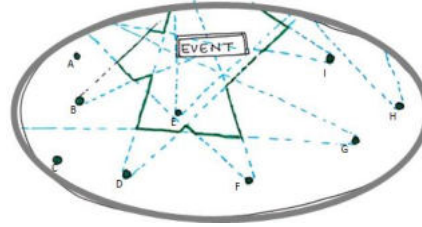


Initial Design Ideas

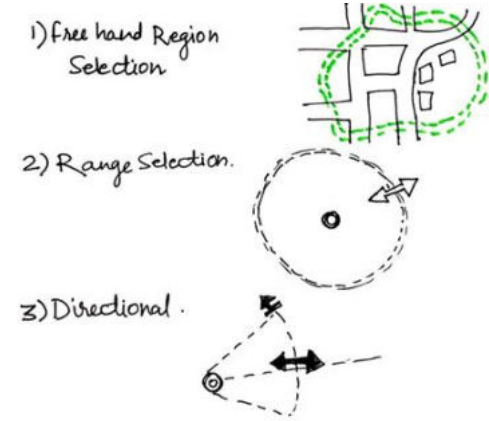
(More ideas)



Concept of Time Division Multiplexing



Point of View availability at a particular instant



Ways to select geographical locations

Initial Design Ideas

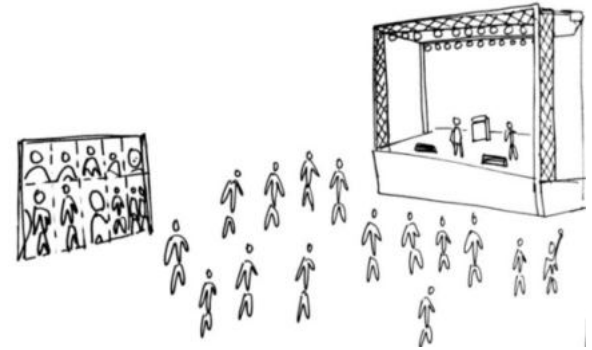
(More ideas)



Streaming local events by
Crowdsourcing



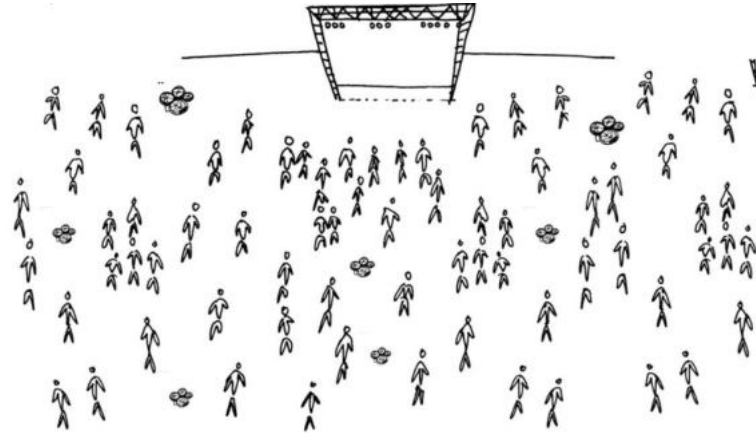
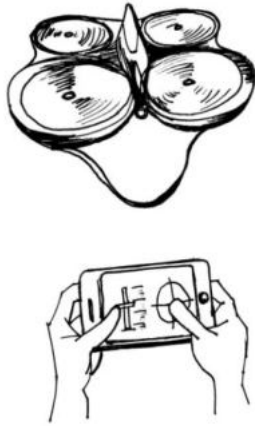
Starting streaming of events to a
remote participant as soon as
some conditions are met



Project Remote attendees to
event's location

Initial Design Ideas

(More ideas)



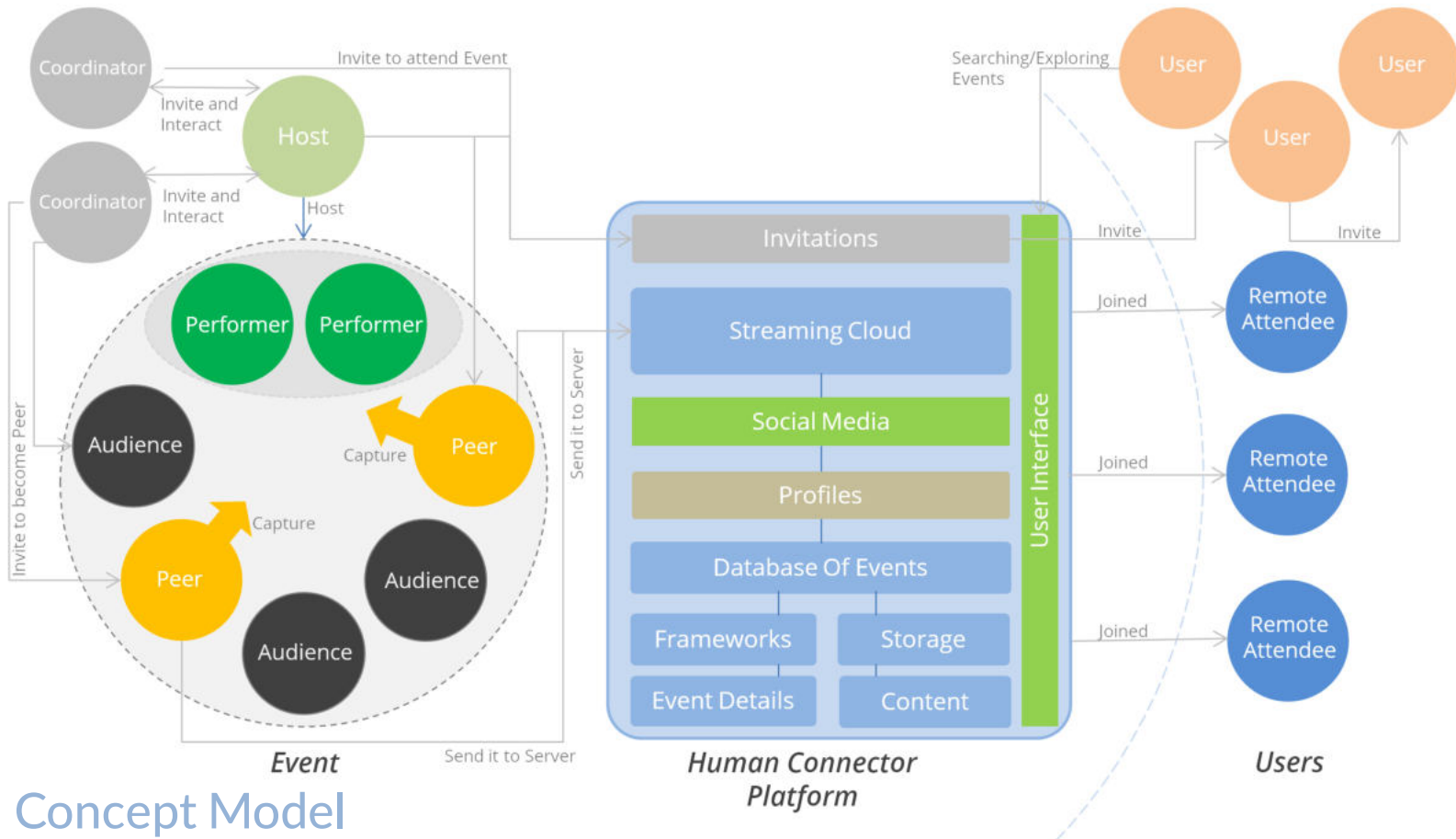
Flying Humans

Human Connector Platform

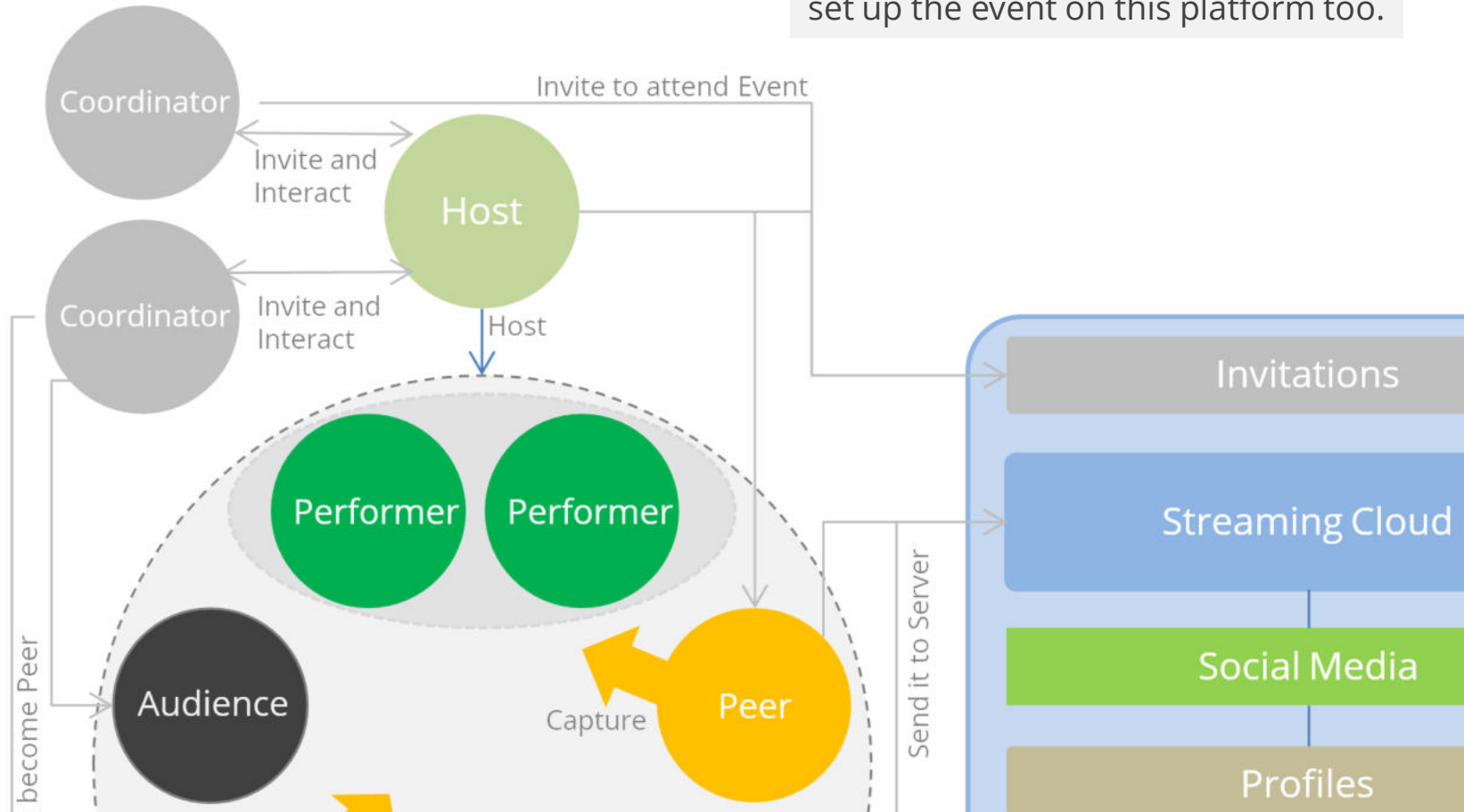
Human Connector Platform

Human Connector is a platform that helps people to,

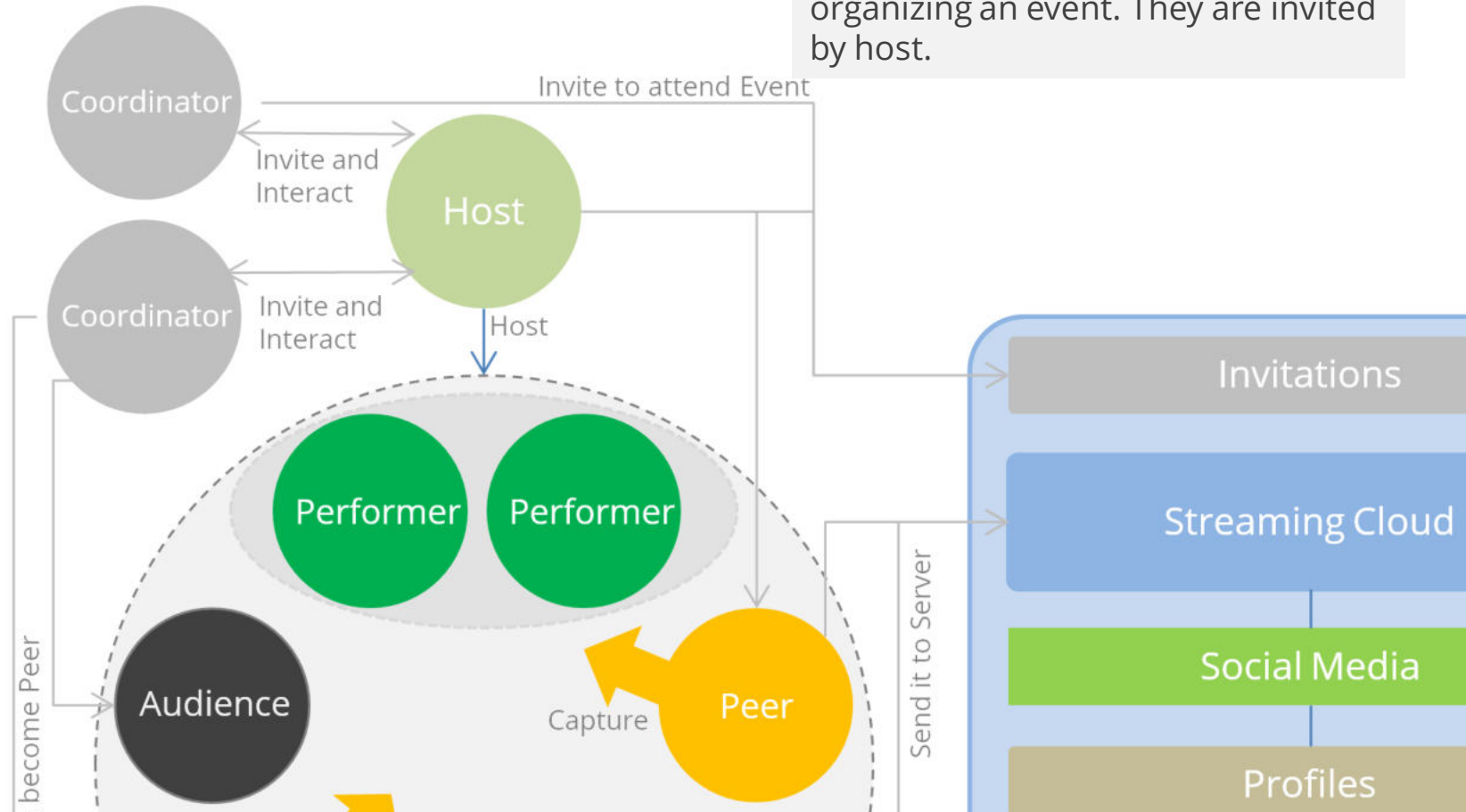
- Find out nearby events,
- Attend event remotely,
- Organizing and Hosting event
 1. Hosting
 2. Promoting/Sharing event
 3. Managing Event - By giving you an event framework by using which it becomes easier to host an event.

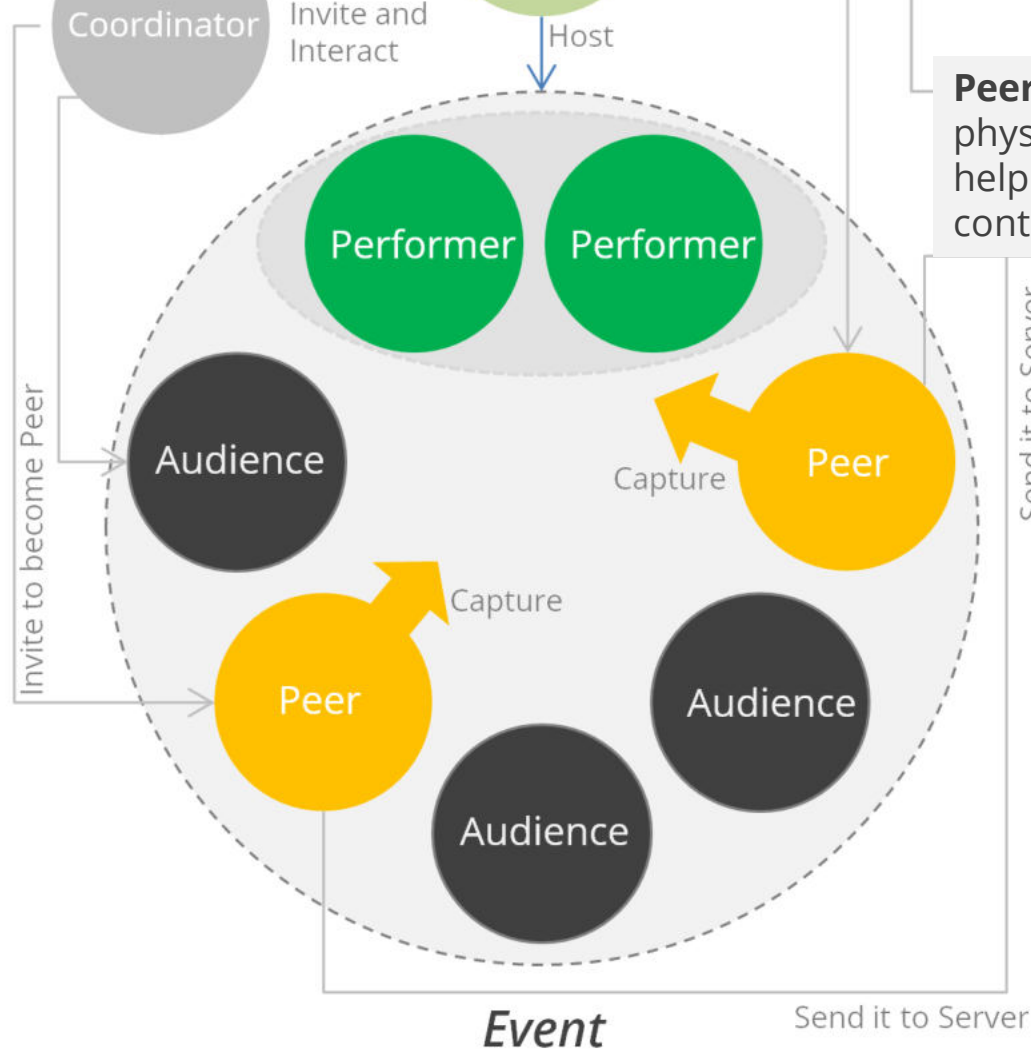


Host: Host is a person, who is the organizer of an event and is going to set up the event on this platform too.



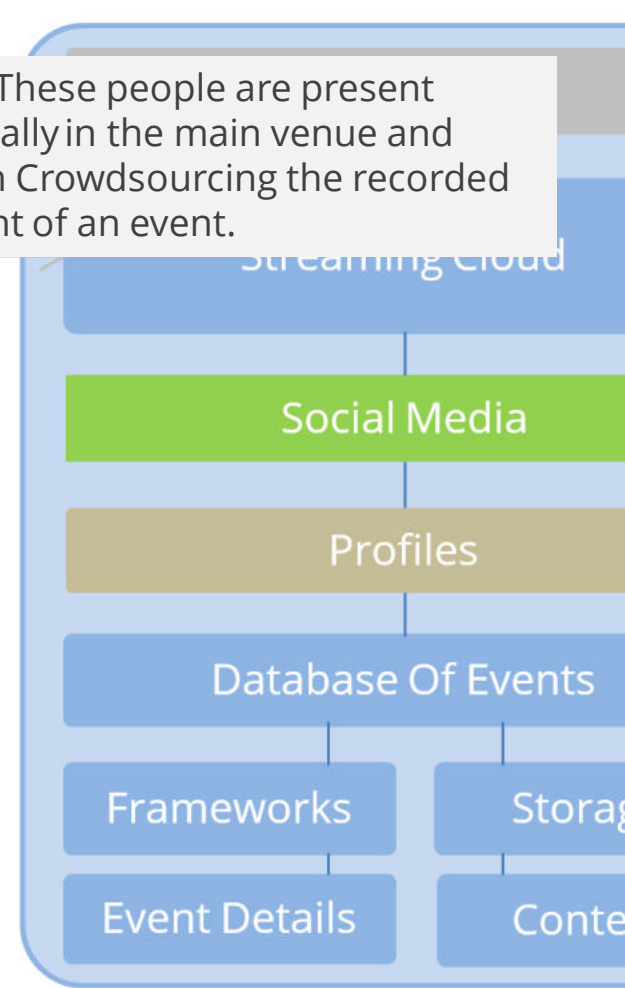
Coordinator: Coordinators are people who help organizer in organizing an event. They are invited by host.



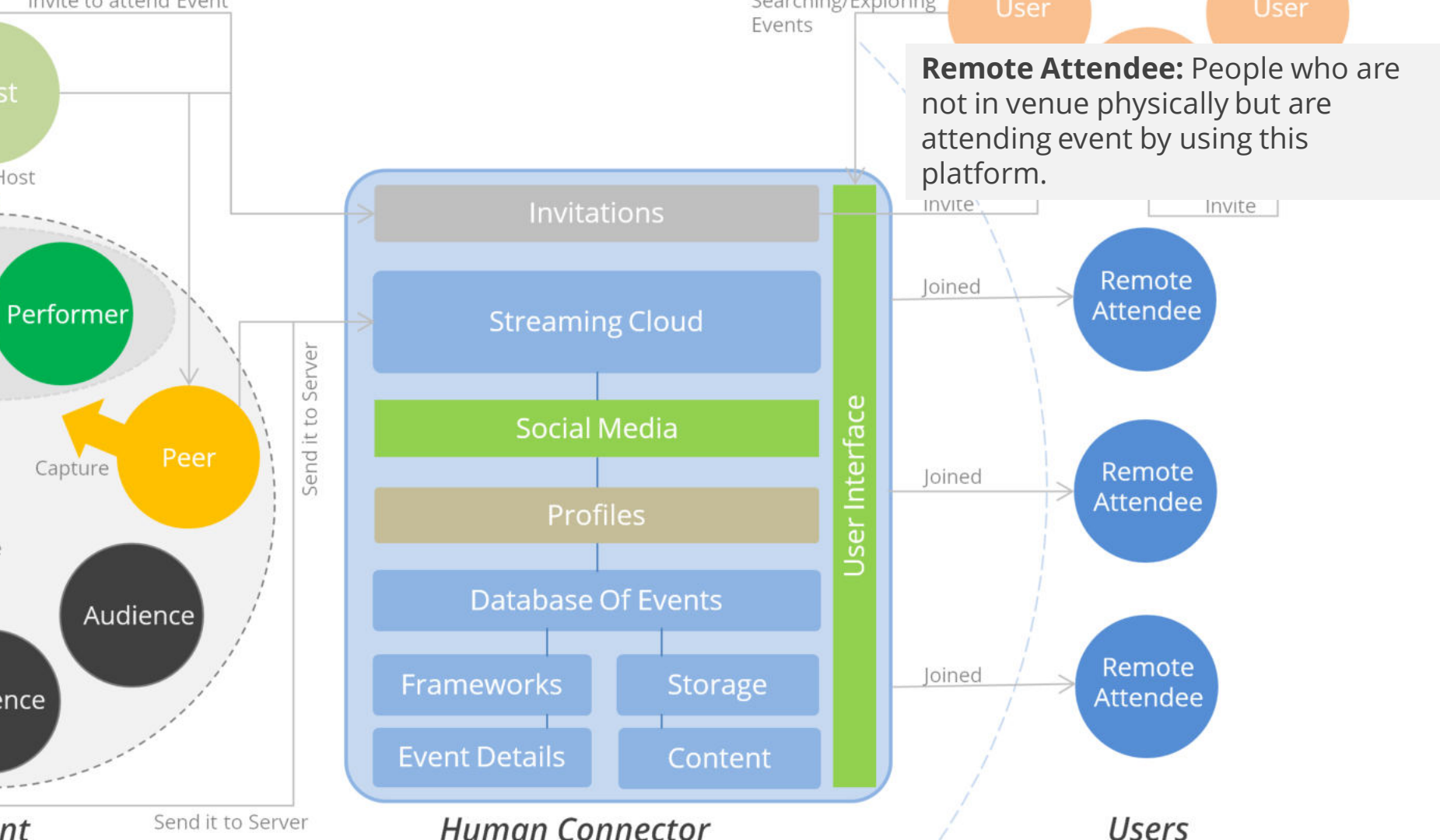


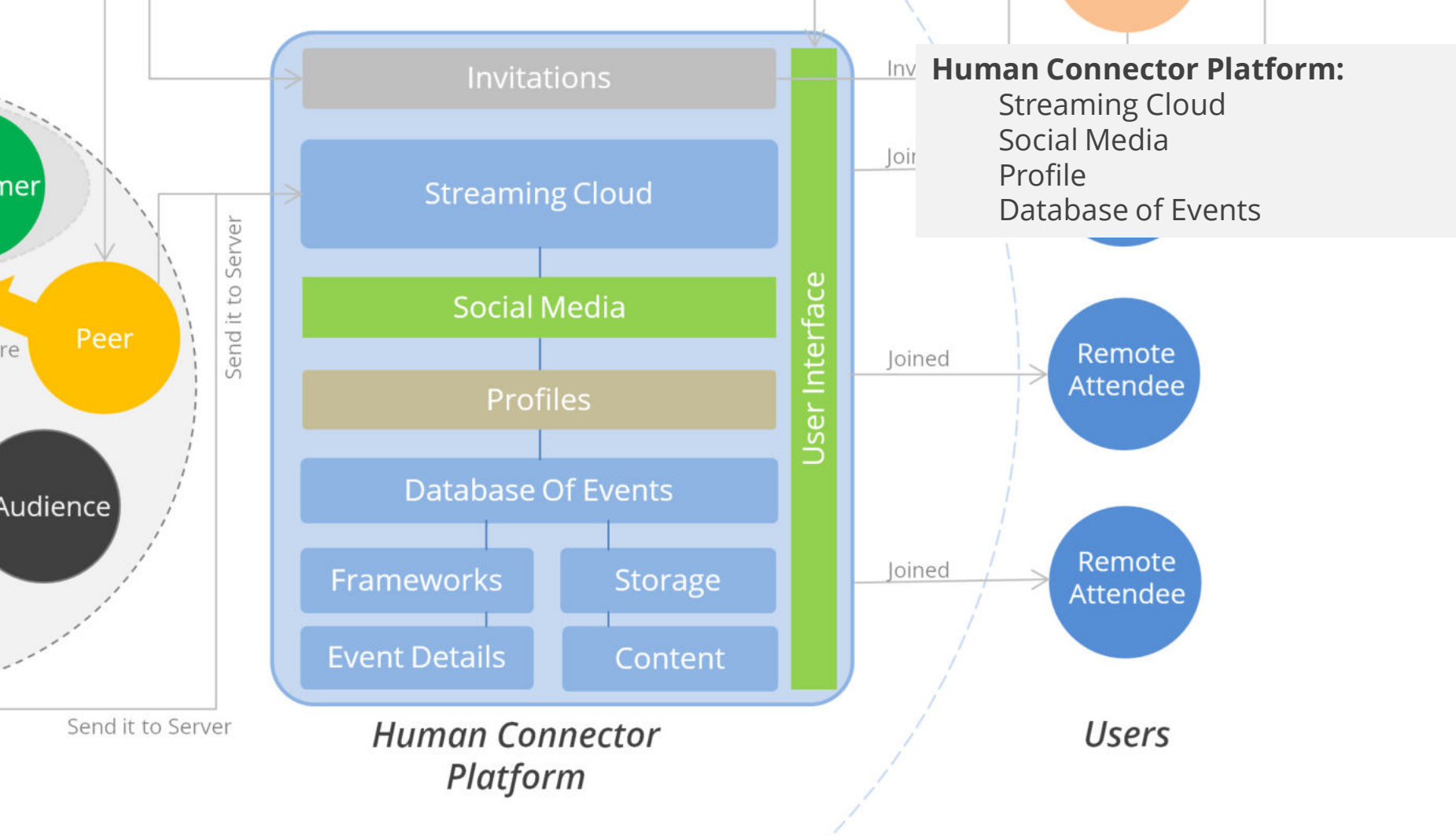
Peer: These people are present physically in the main venue and help in Crowdsourcing the recorded content of an event.

Send it to Server

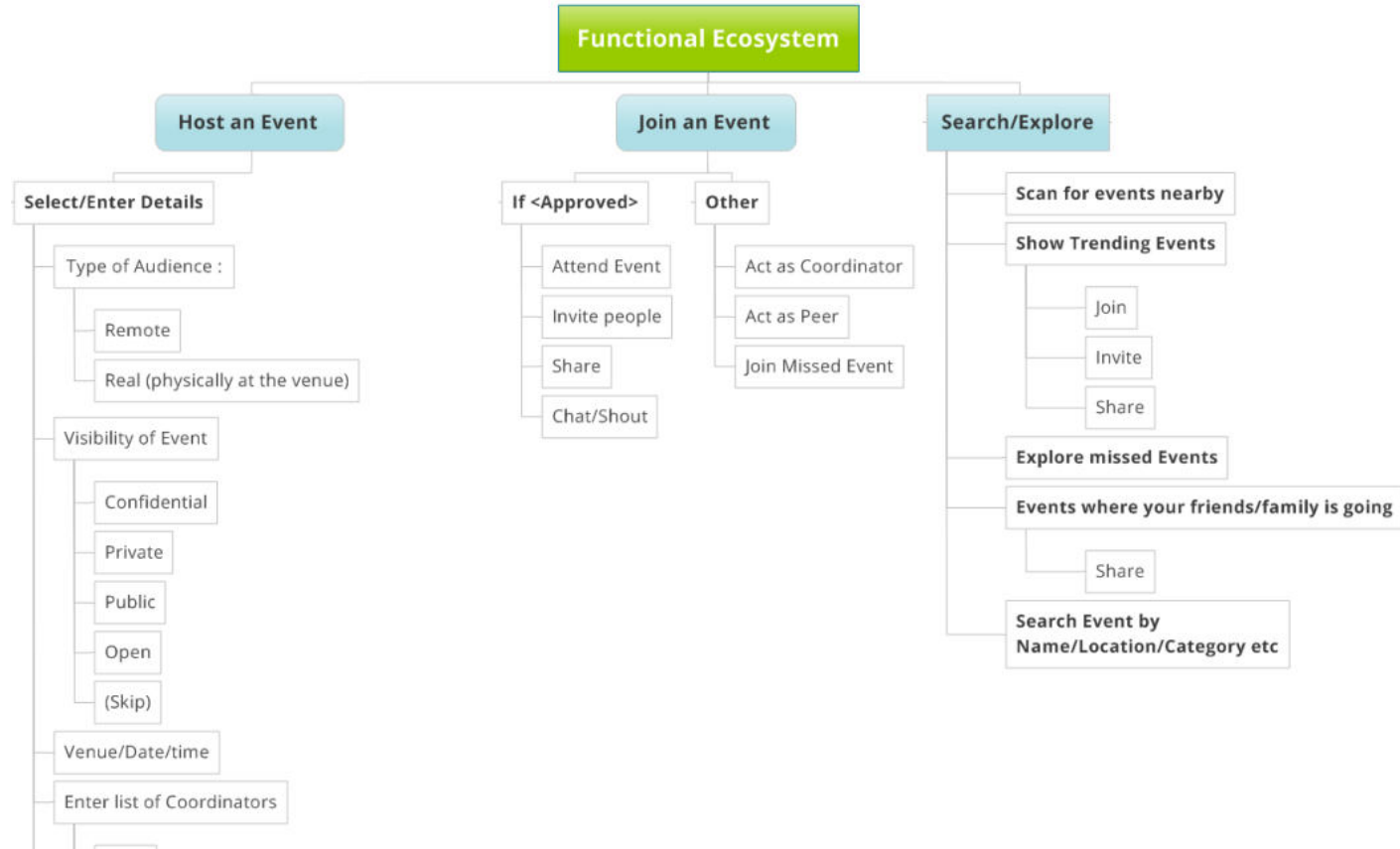


Human Connector Platform

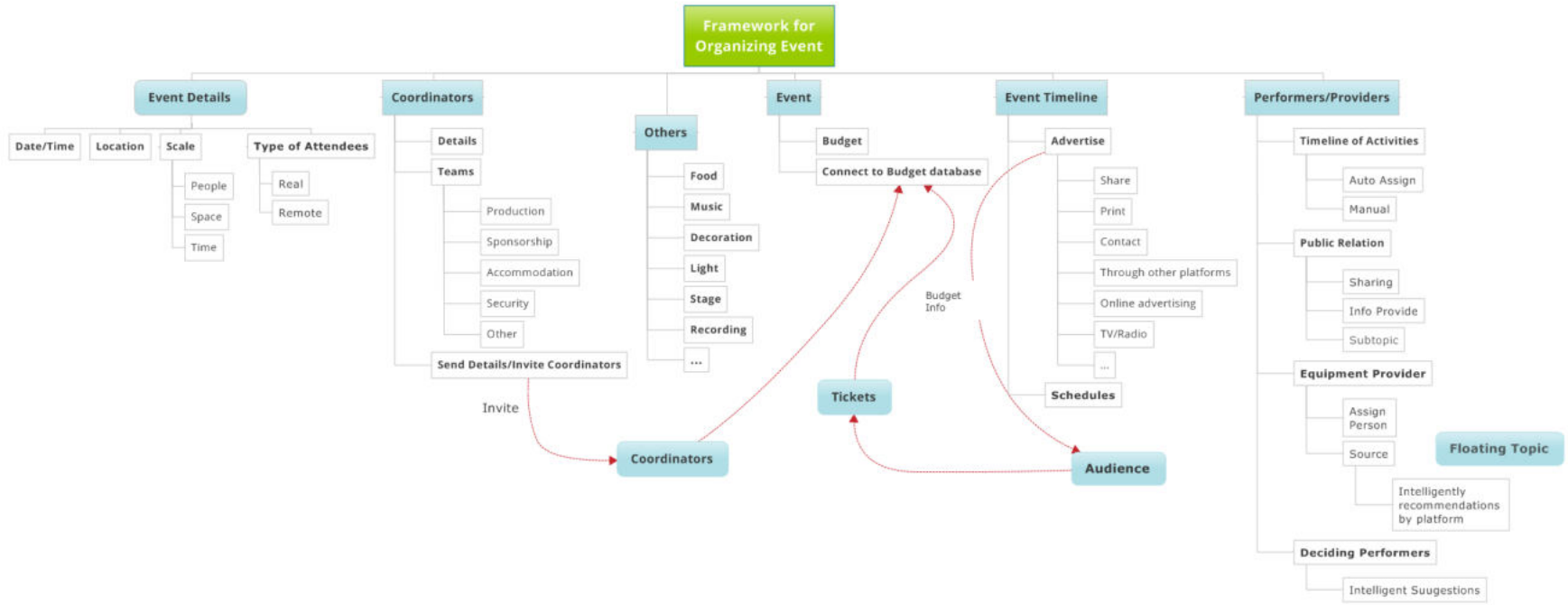




Functional Ecosystem



Framework



Scenario

Profiles

ASHISH (24)

- Staying in Mumbai
- Student of Engineering
- Energetic guy and likes listening to music
- Newbie manager of one of Mumbai's band called "Band X"



BAND X

- A Live music band
- Everyone in this band is studying and pursuing music at the same time
- This is not their earning profession
- They have experience of just 3 to 4 shows



Profiles

AMOL (25)

- Staying in Mumbai
- Student Dentistry from a local dental college
- He is fan of BAND X and keeps on following their work.
- "I don't get much pocket money from my parents.



ADITYA (20)

- Staying in Nasik
- Studying Computer Science Engineering
- Likes to listen to music and attend live events whenever possible
- Broke his leg while Rock Climbing, since then his parents became too strict



Profiles

GOVIND (23)

- Staying in Mumbai
- Student of Engineering
- Classmate of Ashish
- He is part of local music scene and known for supporting lot of underground acts
- Coordinating with Ashish



MR. SEN (67)

- Grandfather of the vocalist of BAND X
- He is already retired from his work and used to work in one of the leading Indian Bank
- Finds it difficult to walk now.
- Fan of classic rock



Scenario

- Ashish (Manager of Band X) wants to organize a DIY event. He just wants to get help of his friends, book a small venue and make it happen.



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- Ashish (Manager of Band X) wants to organize a DIY event. He just wants to get help of his friends, book a small venue and make it happen.
- Govind and Ashish are friends and they start planning a live musical event in which Band X is going to play. As both of them are newbie in organizing events, they wanted some kind of help.



Scenario

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- Govind and Ashish are friends and they start planning a live musical event in which Band X is going to play. As both of them are newbie in organizing events, they wanted some kind of help.
- They get to know about Human Connector App



Welcome to

HUMAN CONNECTOR

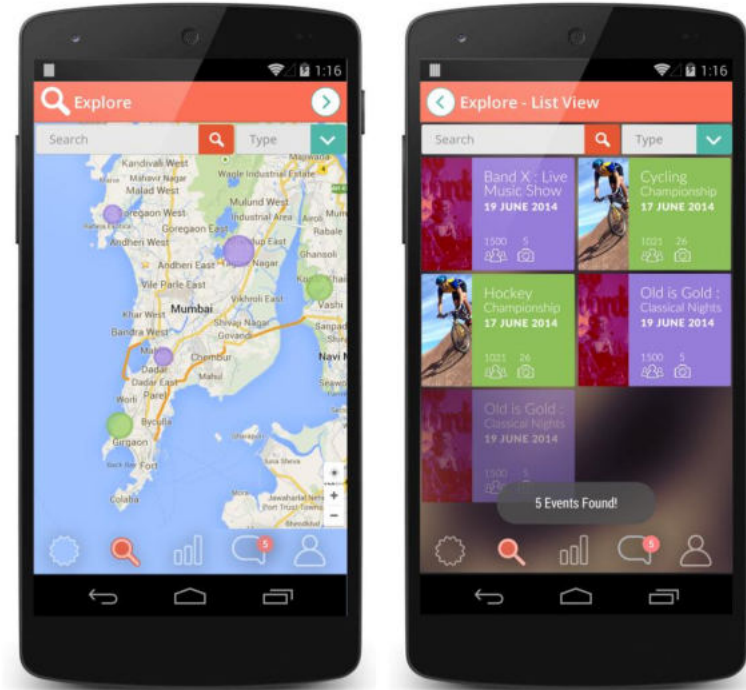


Next..

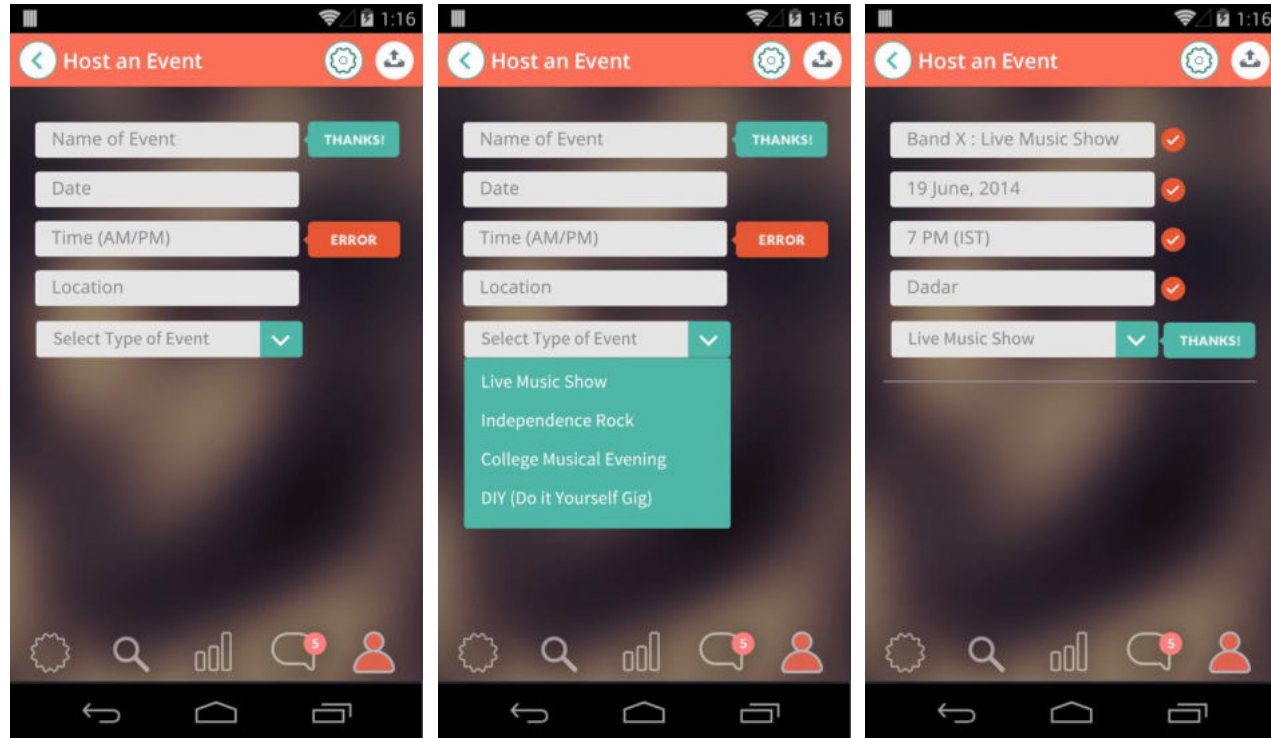
Scenario

This scenario is divided into two parts,

- Part 1 is organizing and coproducing event
- Part 2 is about enabling remote participation while the event is happening.

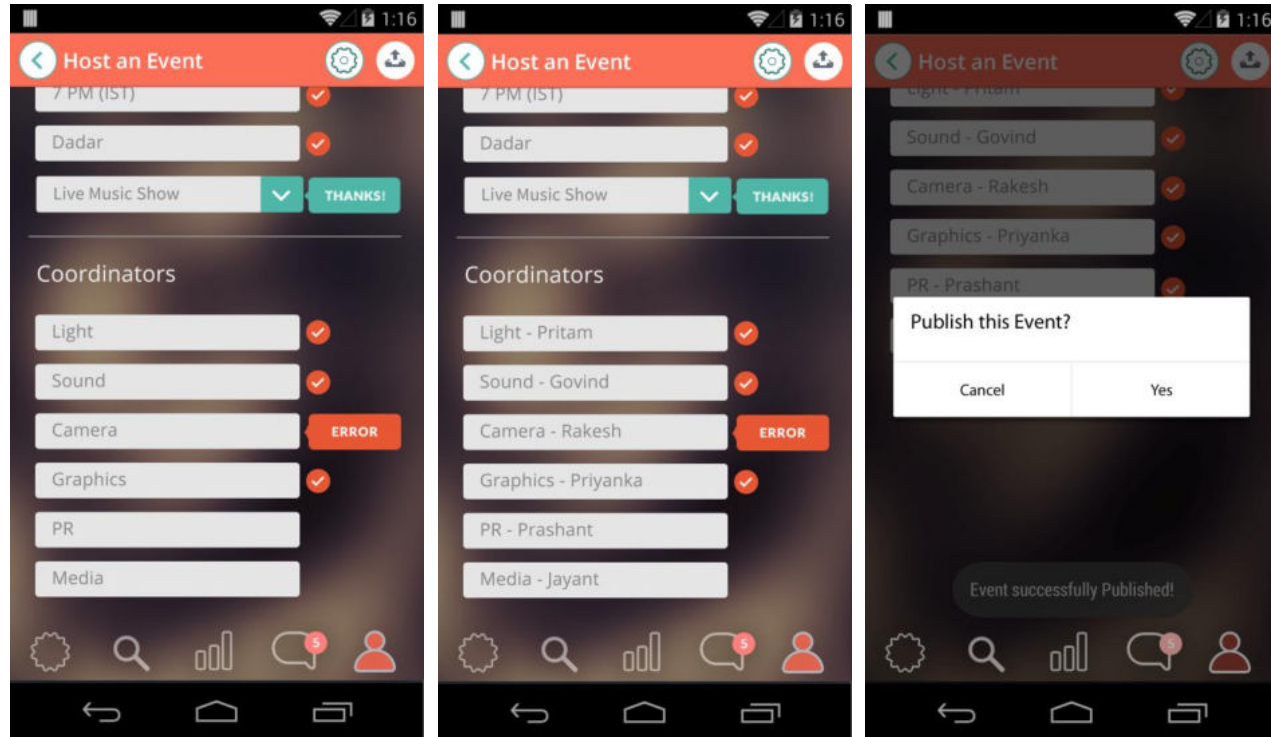


Part 1

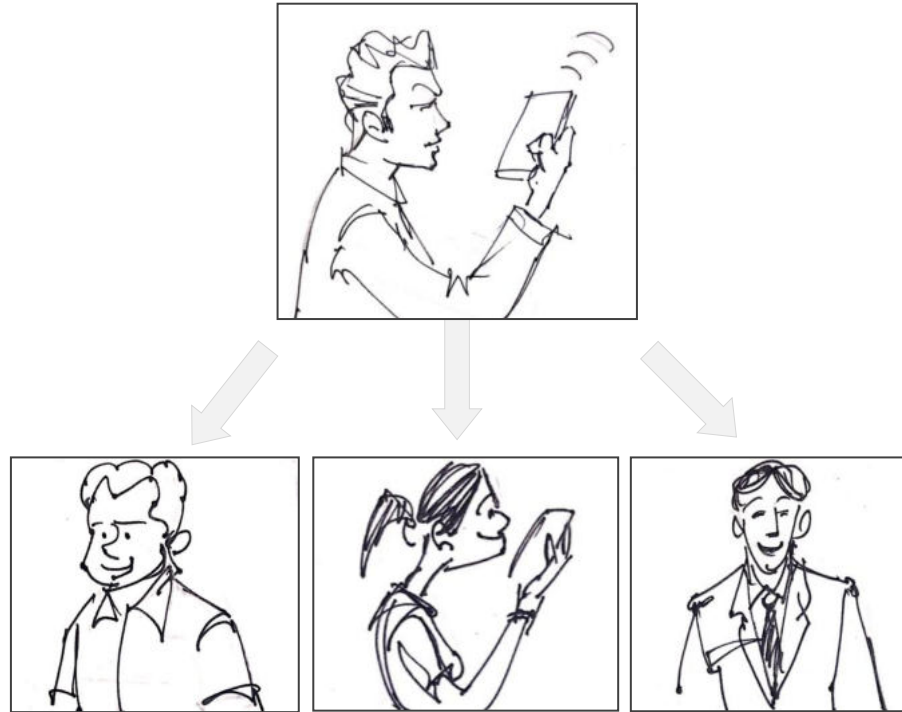


By using Human Connector app, Ashish hosts an event for the first time. He clicks on host an event and start putting details.

Part 1



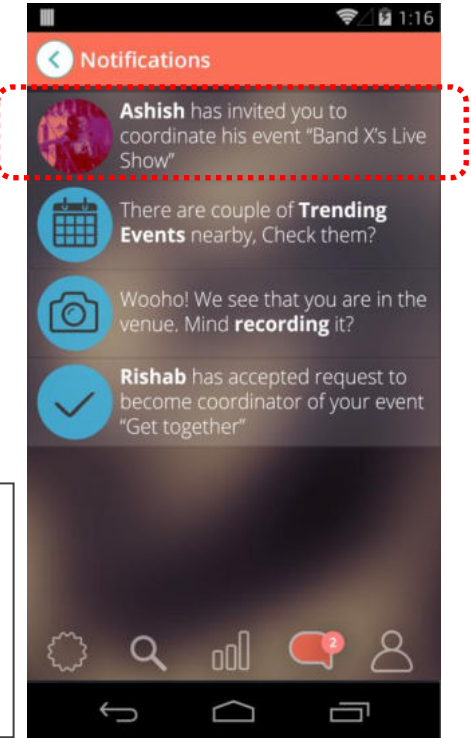
He fills all the required information and as he start writing inside type of event column, he starts getting suggestions of "frameworks", which will help him in organizing event.



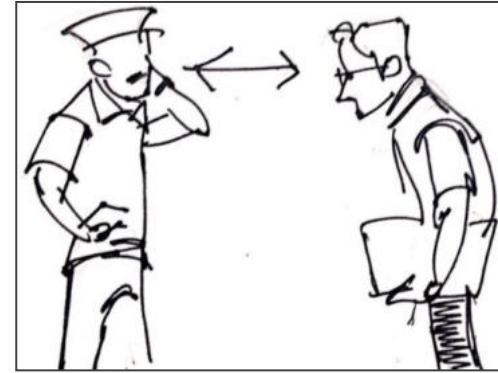
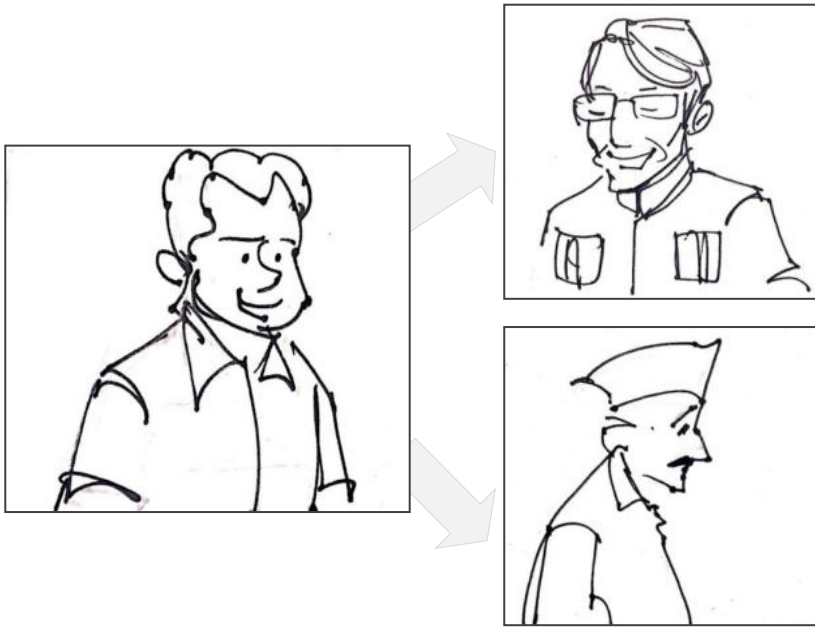
As Ashish entered name of coordinators, people got notifications.



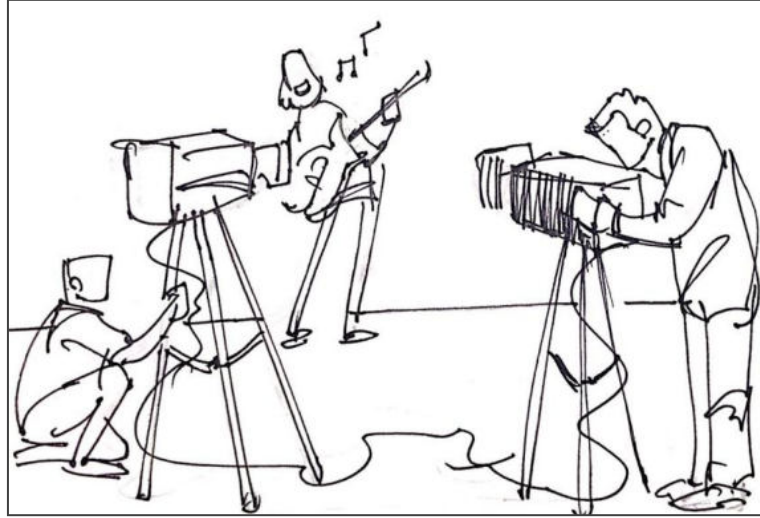
Govind, Ashish's classmate and good friend also accepts the invitation.



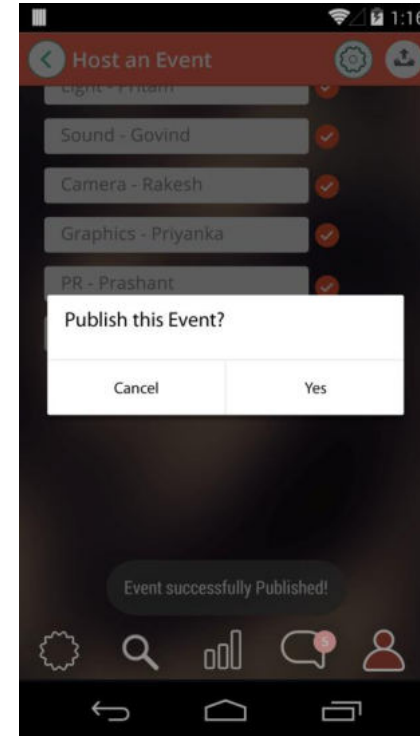
Govind, Ashish's classmate and good friend also accepts the invitation.



Govind gets name of local sound providers and contacts them to get a better deal. He finalizes deal with one of the vendors and reflects on app that he has done his duties.



Host books a small venue where band ill perform and finalizes all the production work. He sets up 2 cameras to capture whole concert from 2 different angles.



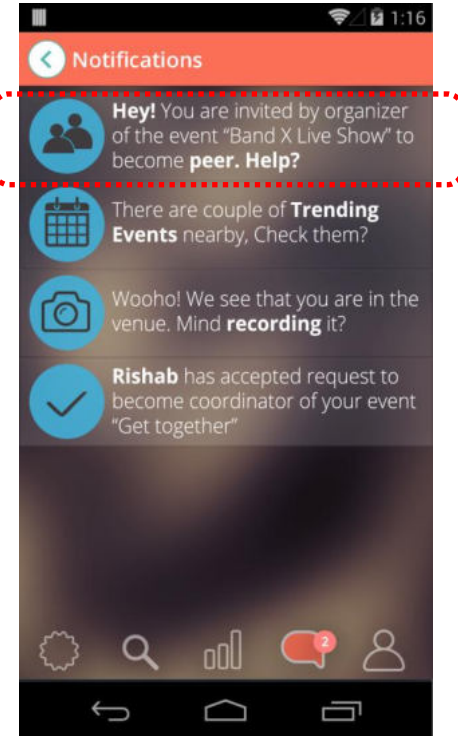
Finally after all the checkups, he finds out that the venue is ready, production is done and they are ready to go live.



Ashish checks that there are around 1500 people who are attending the event online.



Ashish invite peers, who can capture whole event on the go.



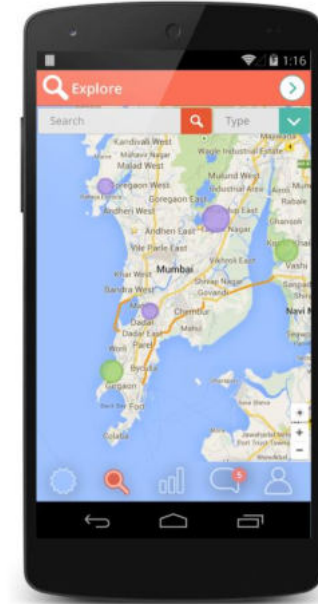
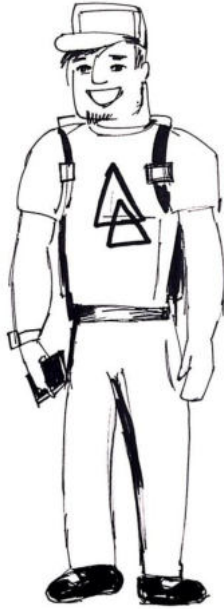
People who are physically in venue get a notification that coordinator wants them to help as a peer and help crowdsource the whole event to the global crowd.



**Human
Connector
Server**

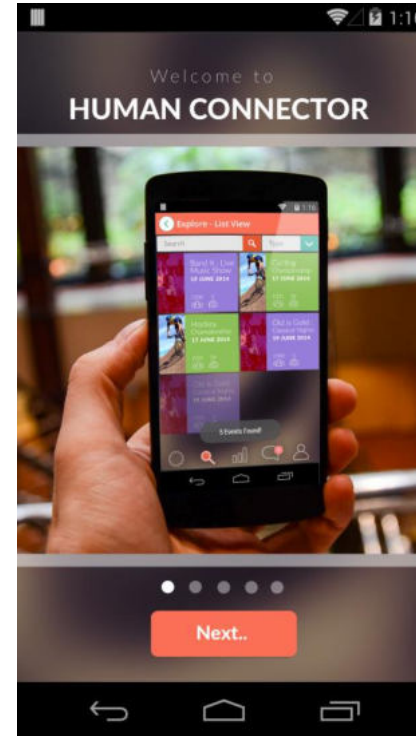
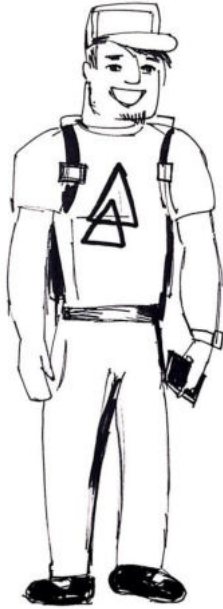
As the event starts, some of them start capturing the event using Human Connector App. As they capture, this recorded content starts syncing with cloud and is made available for remote attendees.

Part 2

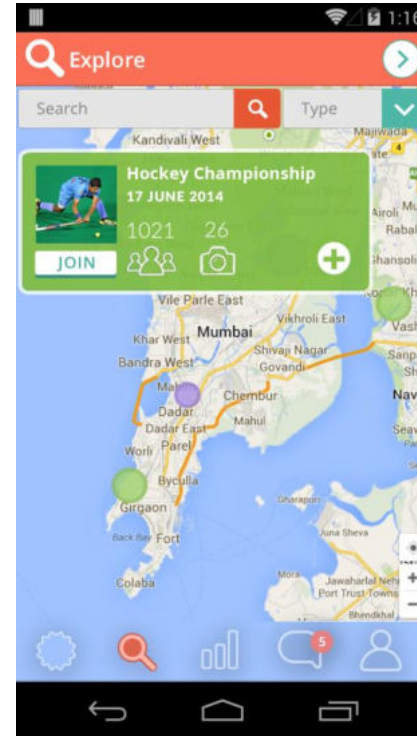
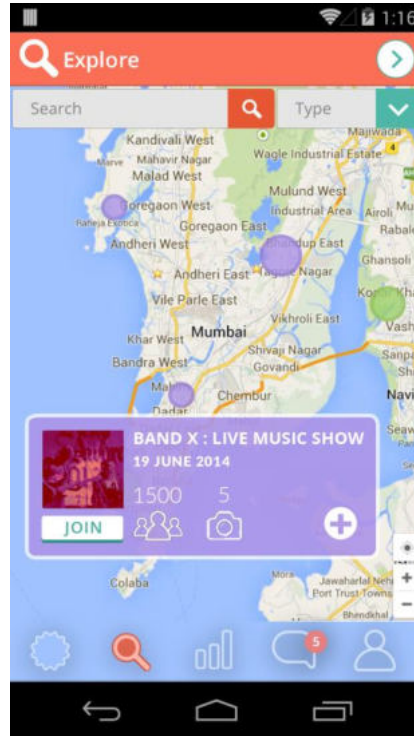
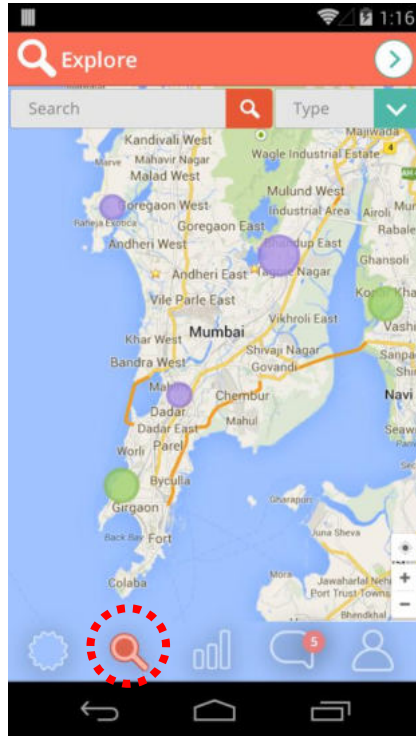


Aditya stays in Nasik, he was exploring events happening in Mumbai and finds that Band X is performing. He eagerly wanted to attend live event, but there is always something better than nothing.

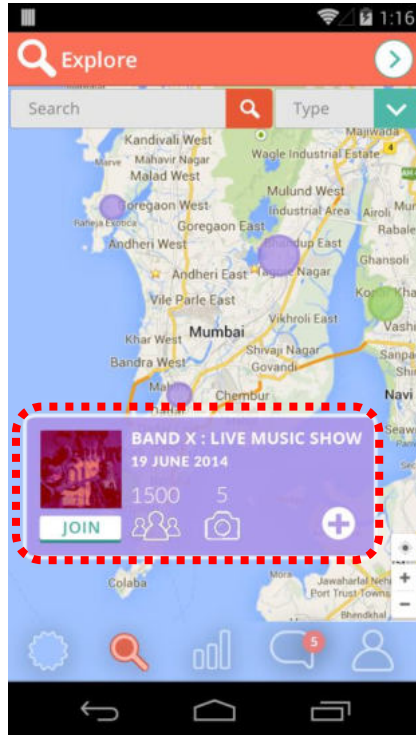
Part 2



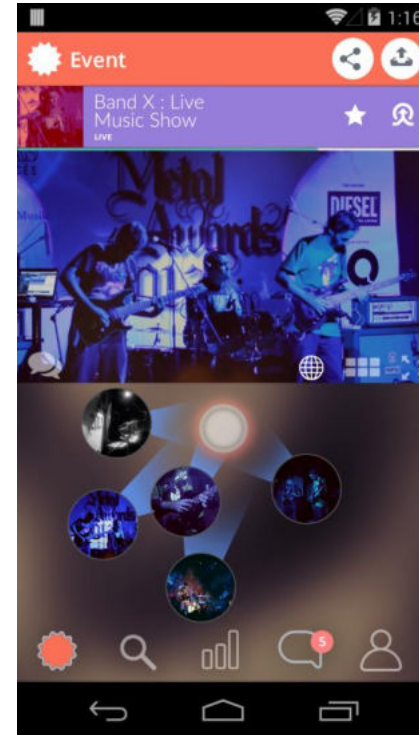
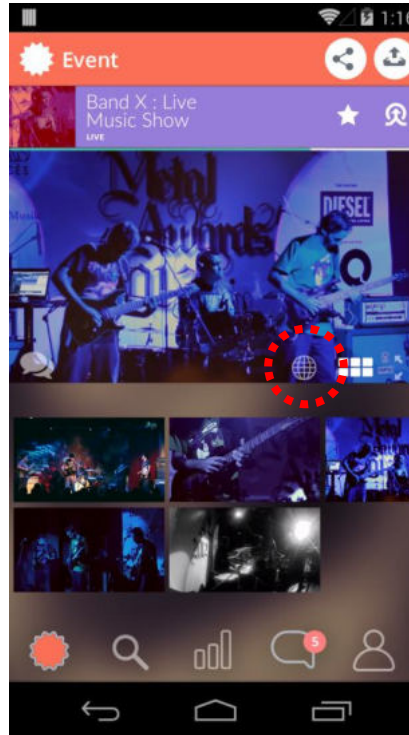
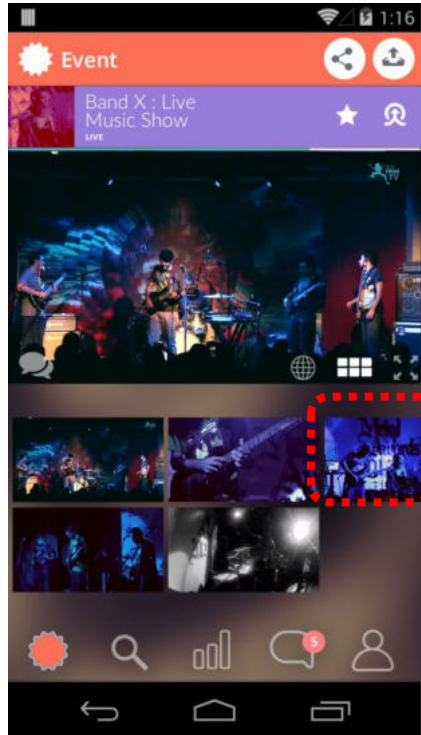
He makes use of Human Connector app to be part of the whole event.



He makes use of explore feature to see events happening in Mumbai . Bigger the circle, more number of virtual attendees. Green circle shows events which are already done.



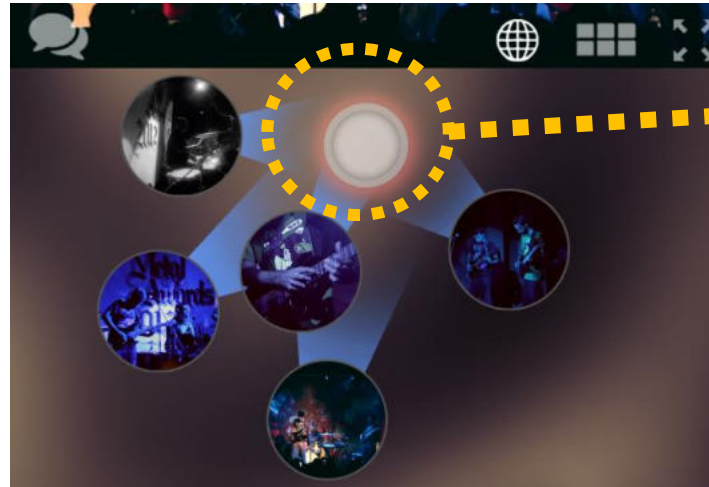
By tapping over Band X's popup, he becomes part of the event.



Switching on globe icon will change it to the directional view.



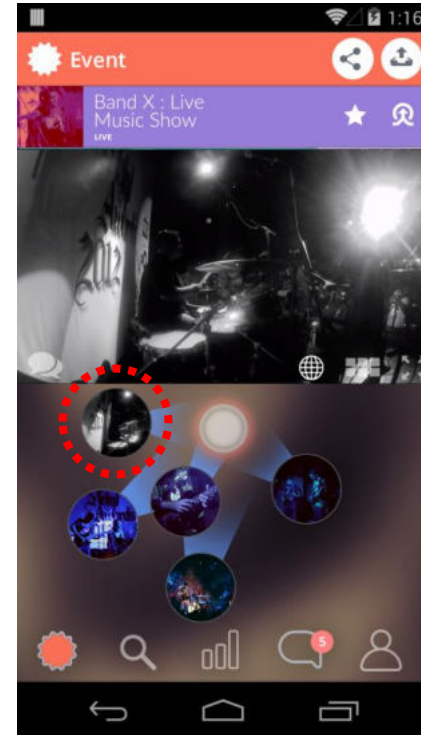
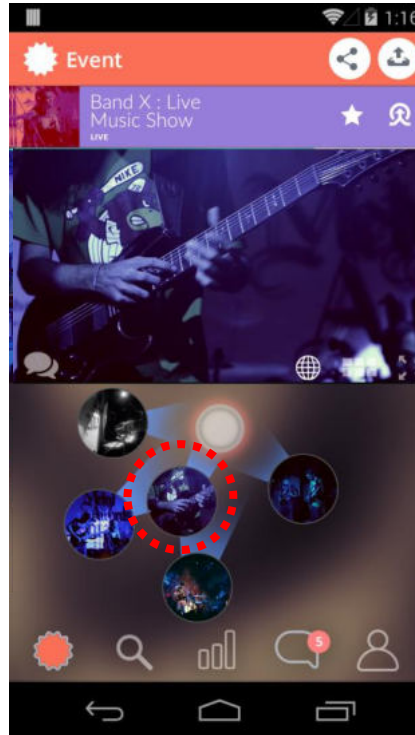
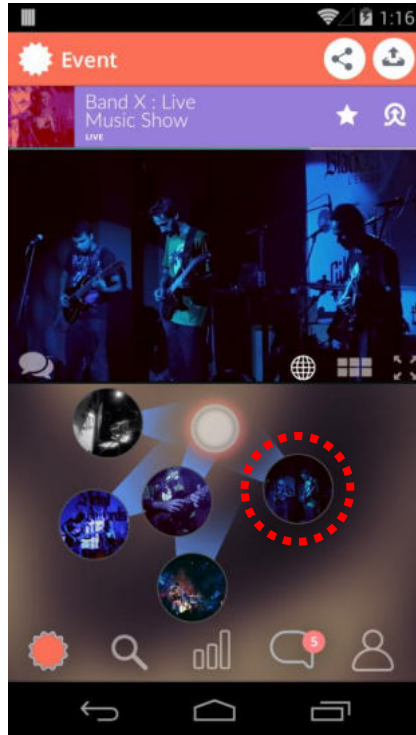
Directional View shows recent camera footage from top view alongwith the directions. (It's not possible in any other application)



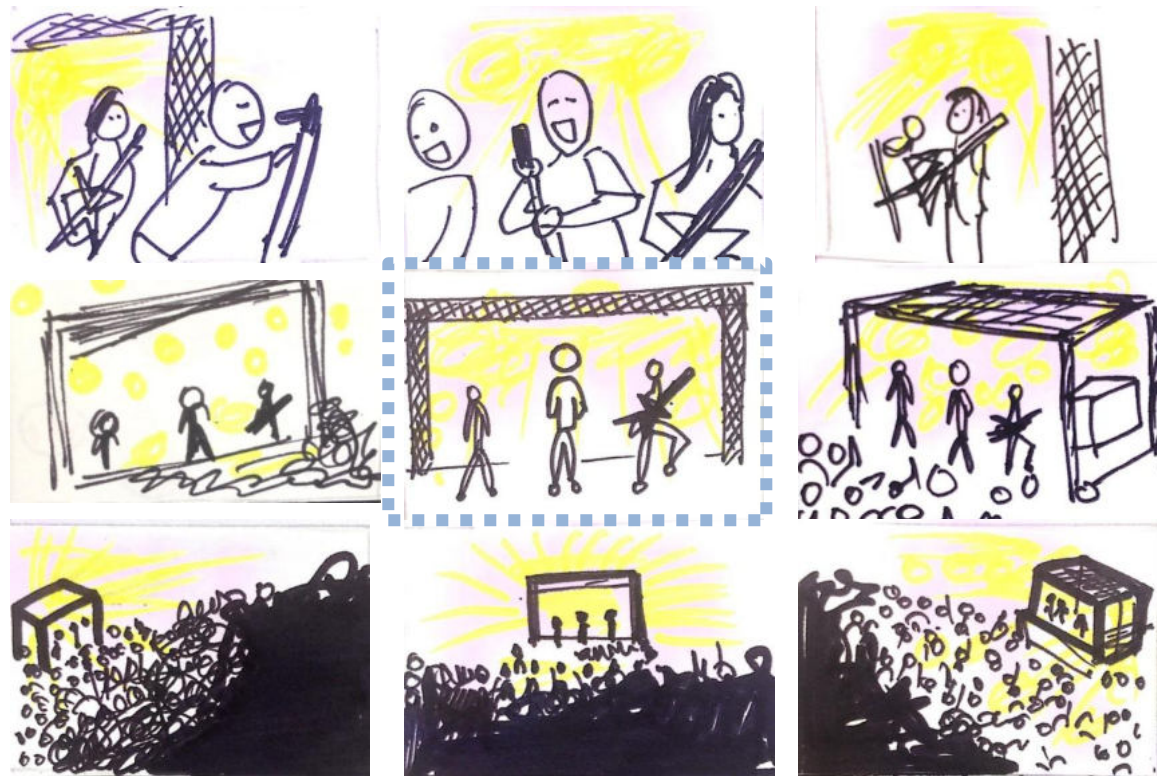
Most captured area
decided as stage by
algorithm

(Vector summation of
directional data)

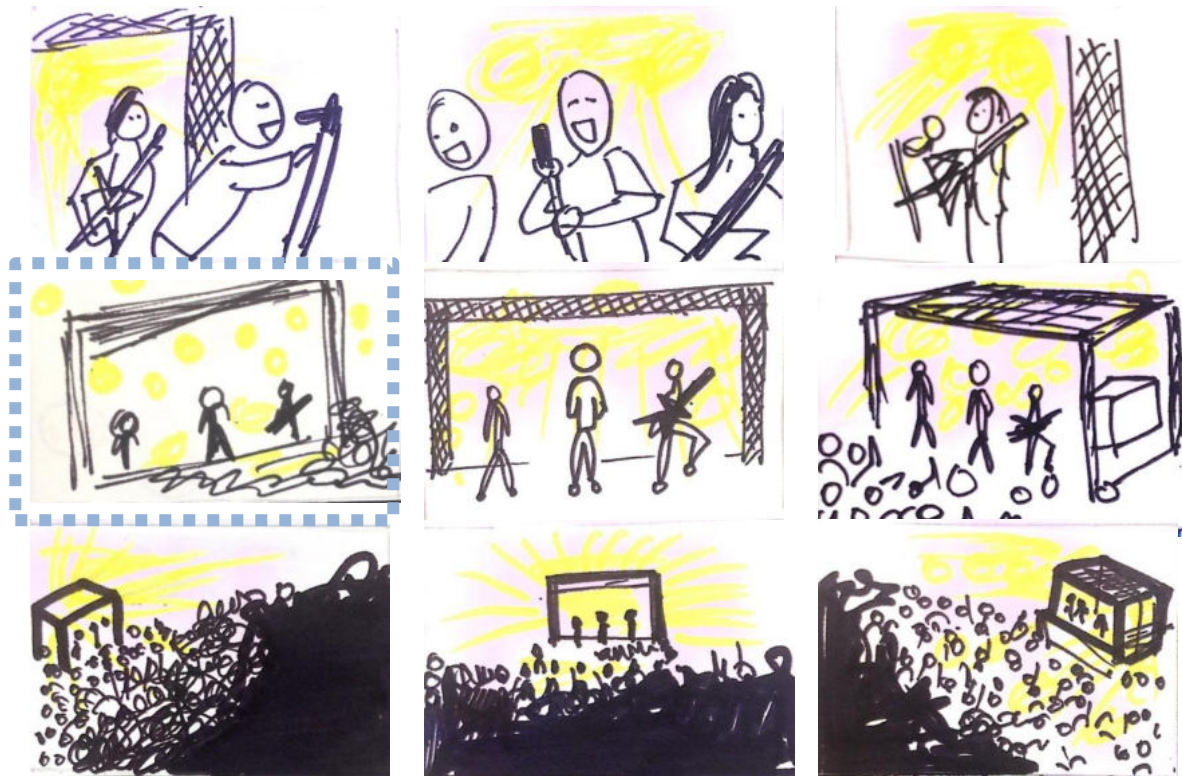
Directional View shows recent camera footage from top view alongwith the directions. (It's not possible in any other application)



Clicking on the rightmost camera will switch it to the live feed from the rightmost camera angle.

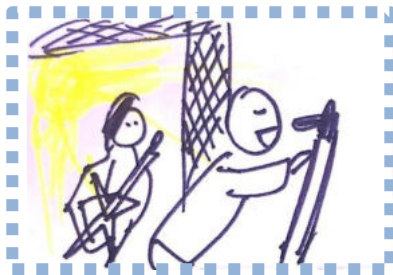


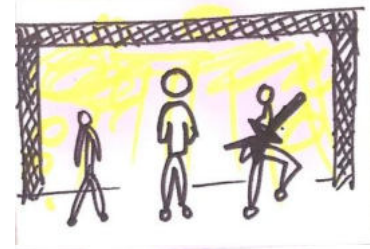
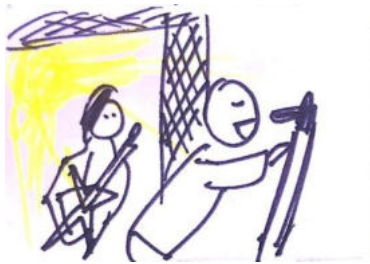
Clicking on the rightmost camera will switch it to the live feed from the rightmost camera angle.



Swipe Right

Swipe Down



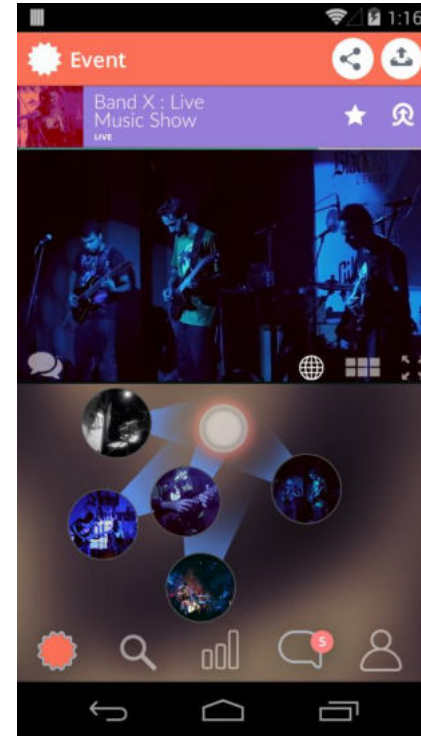
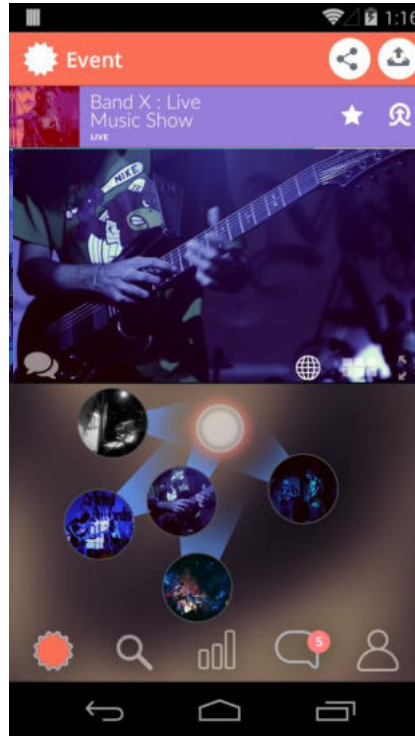


Swipe Left

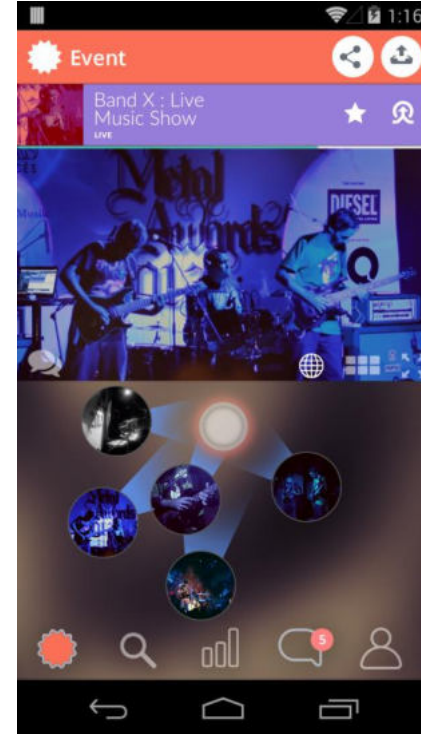
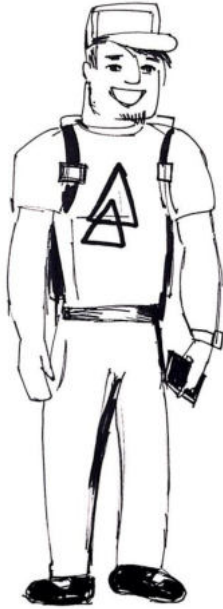


Swipe Up
2 Times

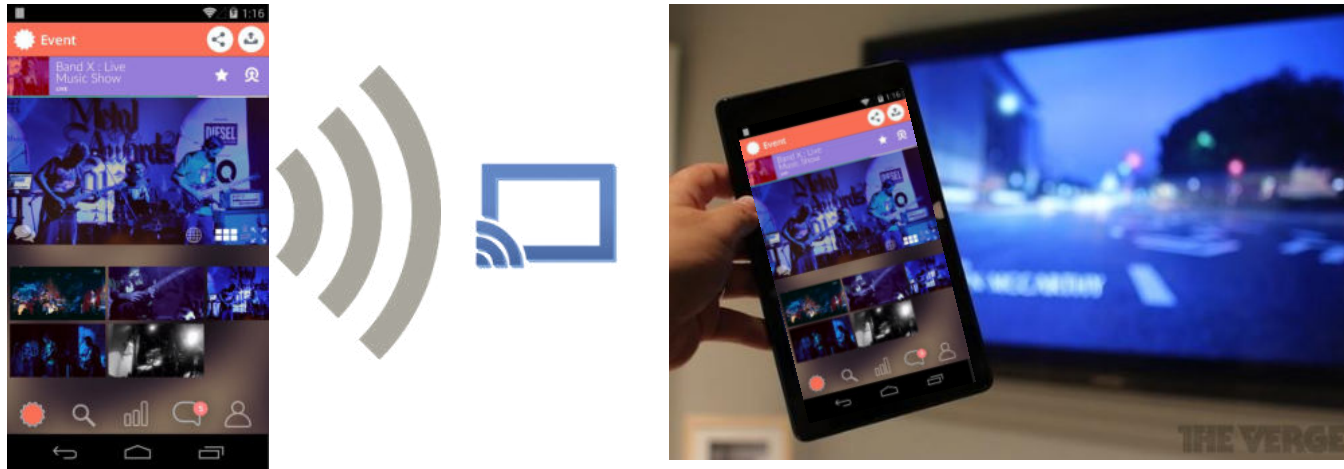
Swipe Area



Because we have directional data, it works.



Aditya simply loves attending this event remotely, all with the help of Peers who helped him to send footage through their devices.

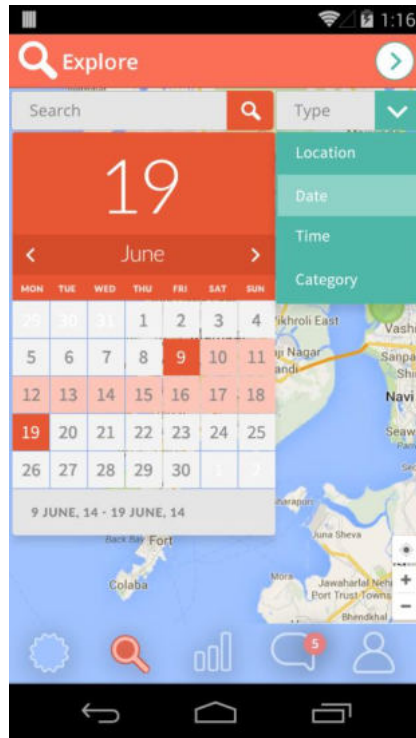


App sends the mobile content to TV Screen using Chromecast.

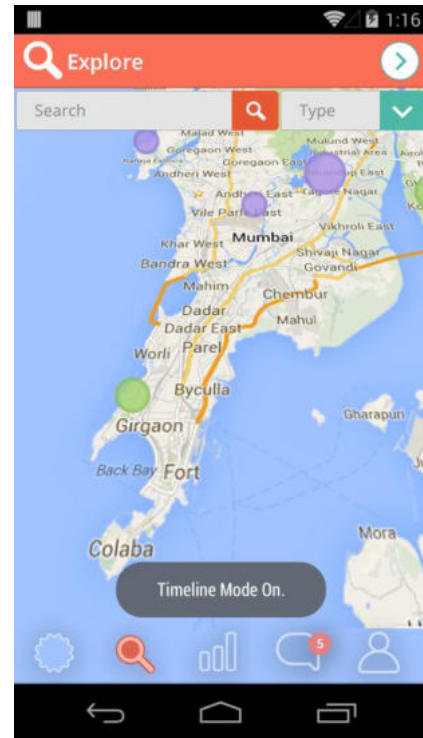
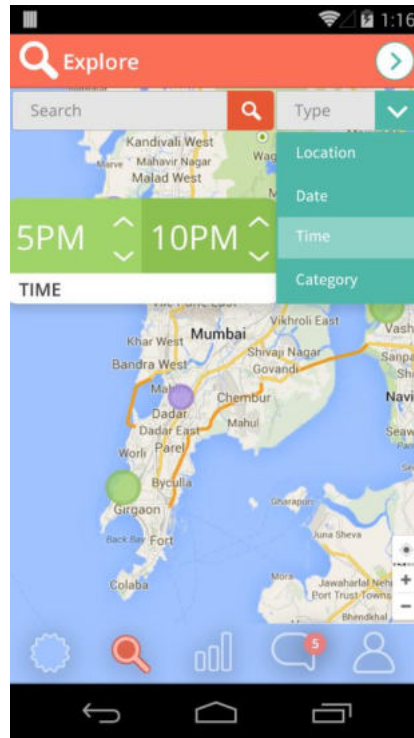


Mr. Sen finally finds a medium to attend his son's events and watch them on big television.

Other Features

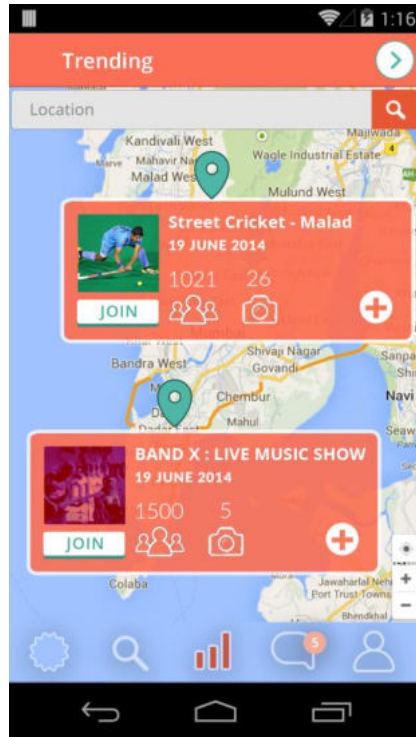


Search Filters

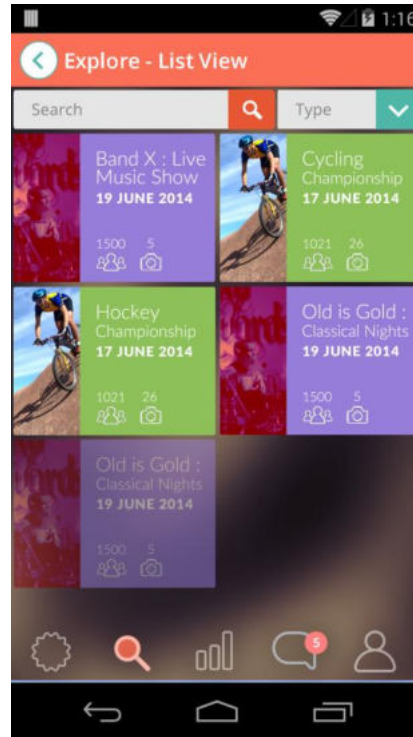


Timeline Mode

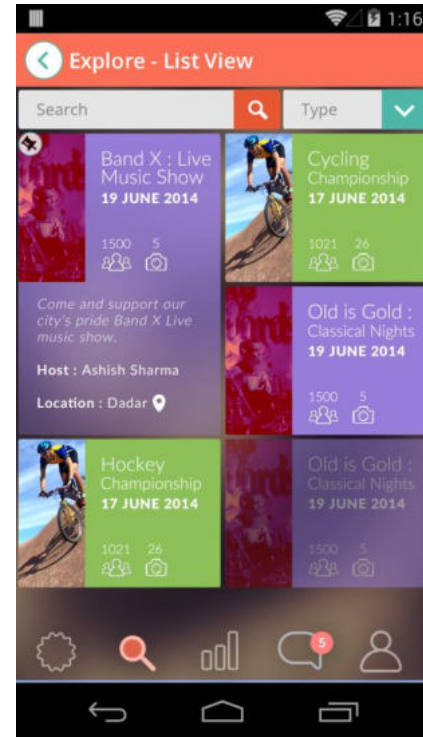
Other Features



Trending Events



Explore – List View



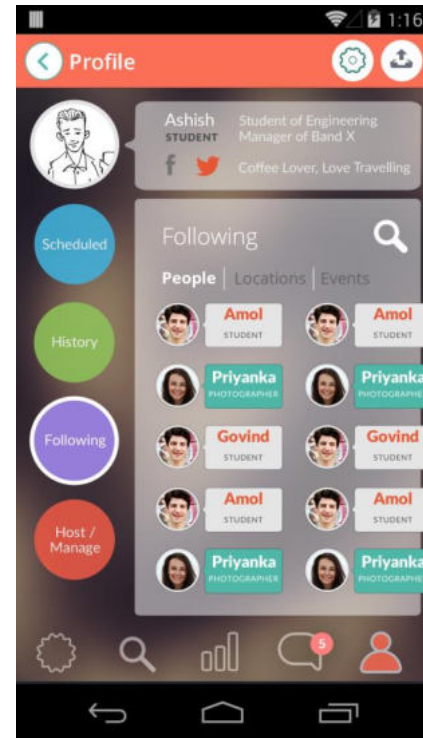
Other Features



Schedule Event



List of attended
events

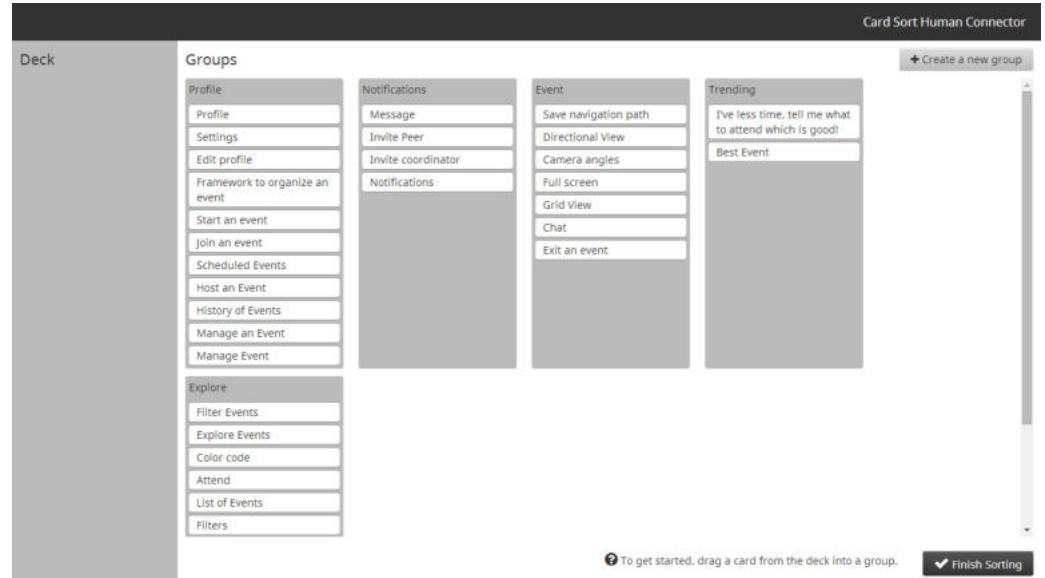


Follow
Location/Events/People

Process

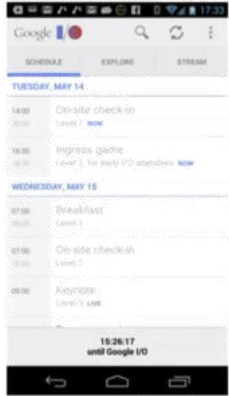
Information Architecture

- Figured out the elements required.
- Card Sorted
- Used online tool conceptcodify.com

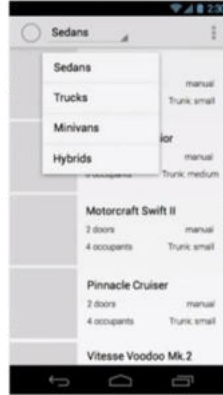


Information Architecture

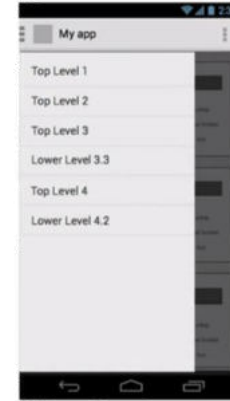
Fixed Tabs



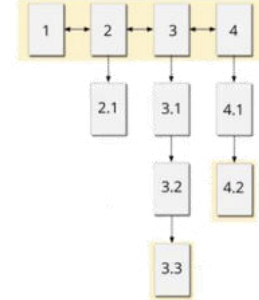
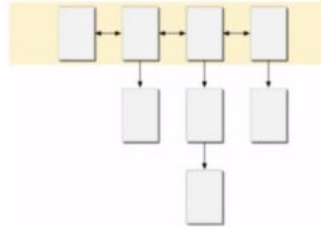
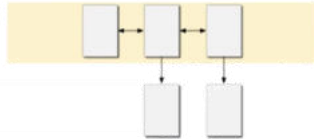
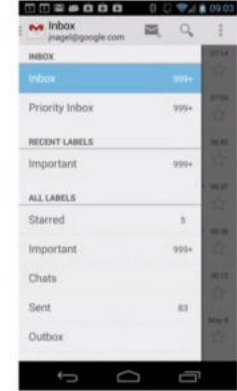
Spinners

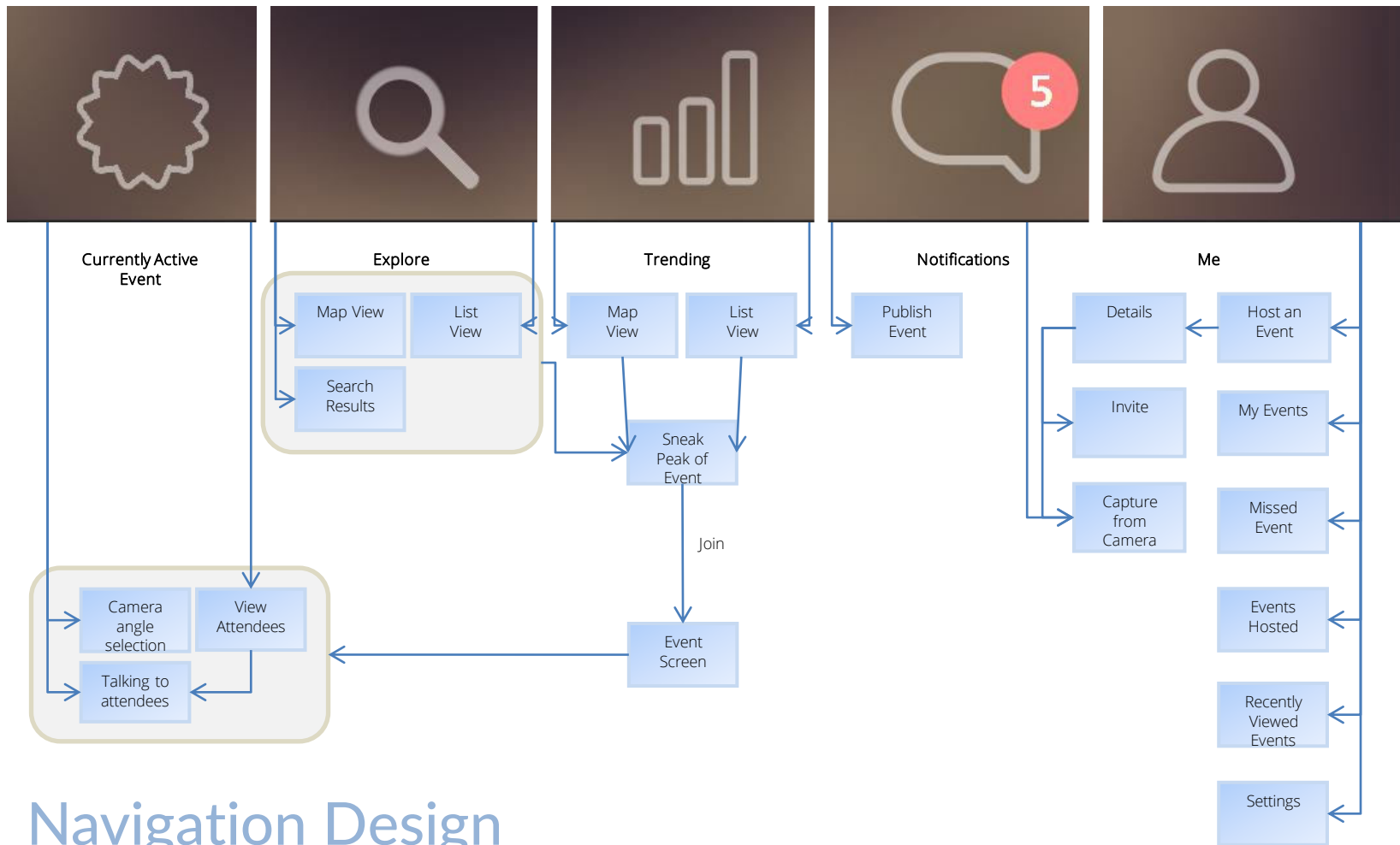


Navigation Hubs



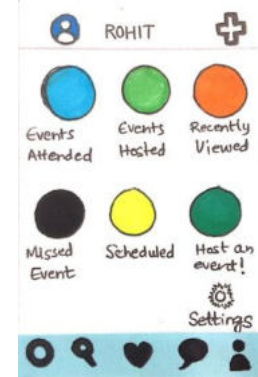
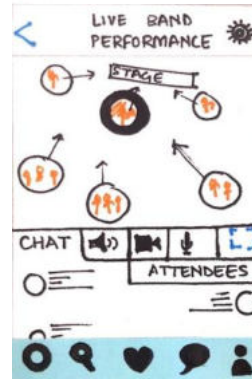
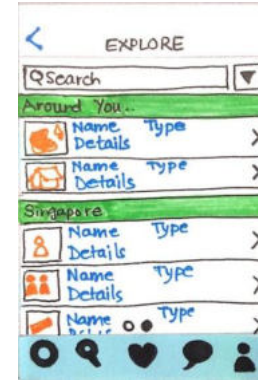
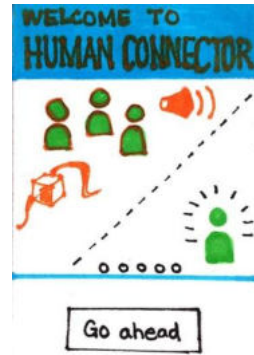
Navigation Drawer





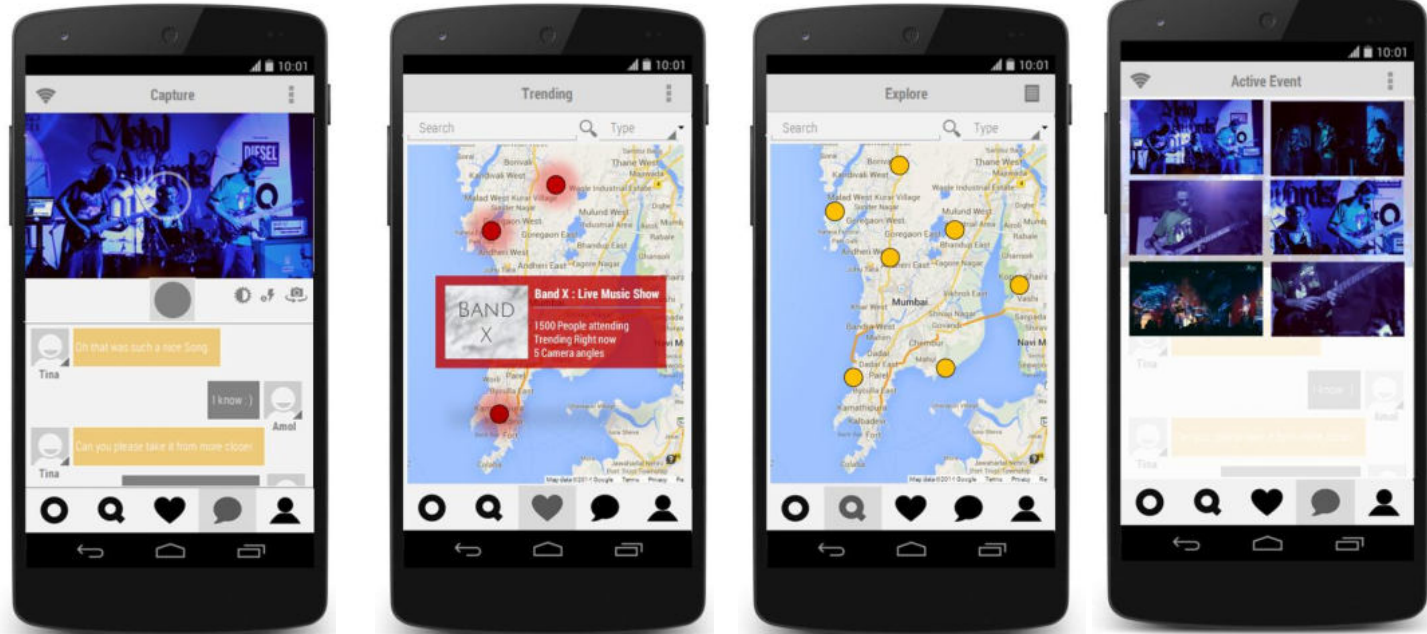
Low Fidelity Prototype

- Made a Low Fidelity Paper Prototype
- Think aloud with 4 users
- Presented to Prof. Roger Zimmermann (Geovid Technology)
- Got feedbacks



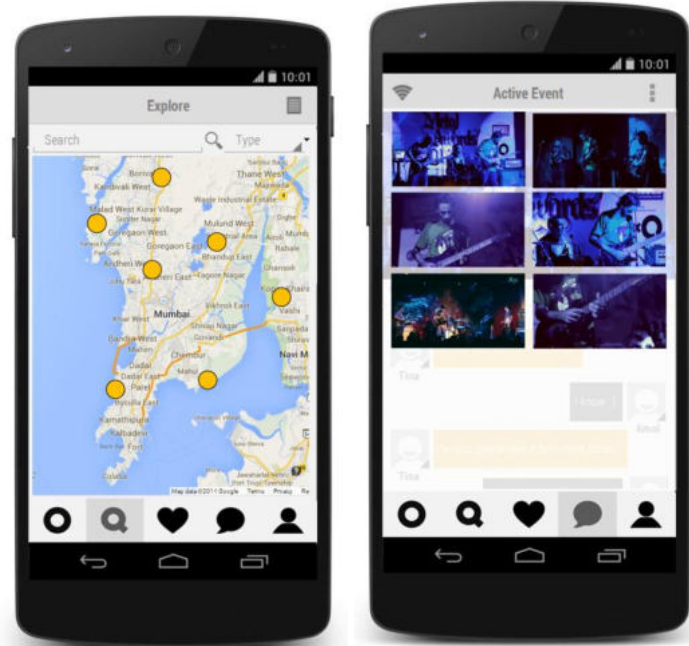
Clickable Prototype

Made a Clickable Prototype using JustinMind



Clickable Prototype (Iteration 1)

- After feedback changes in Navigation Path
- Added slight more details



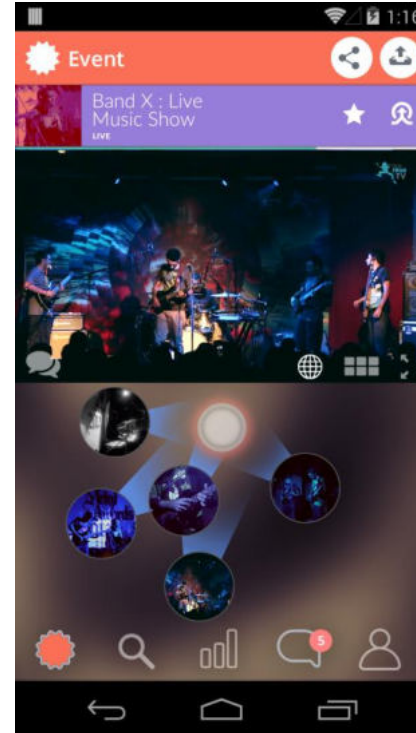
Clickable Prototype (Iteration 2)

- Worked on visual identity of the app with very well defined navigation path
- Took feedbacks and worked on mapping of icons.
- Events are generally full of colours, earlier version looked very neutral and dull. Added Colours to give it more richer look and feel.



Clickable Prototype (Iteration 3)

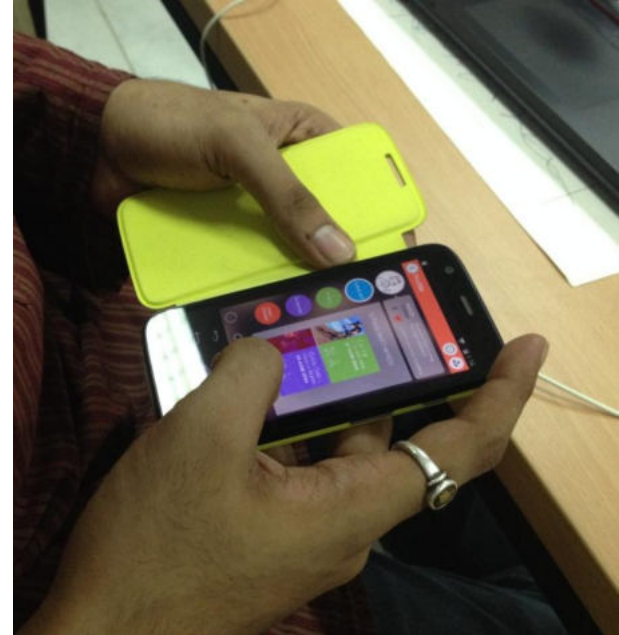
- Restricted the number of colours used as they were not looking very smooth.
- Reworked on icons.
- Gave more fresher feel and made better spaces for icons based on the feedback.



User Testing

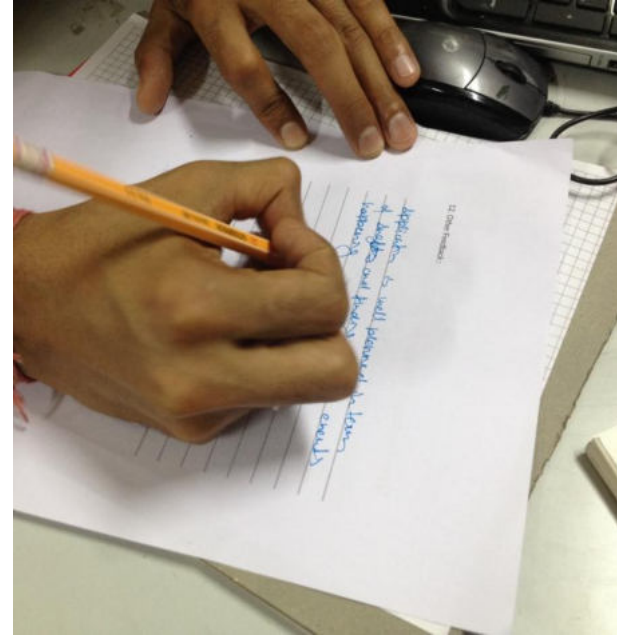
User Testing

- Paper Proto – Think Aloud with 4 users
- Latest Iteration (Think Aloud + 10 Tasks Given) 11 Users
- Criteria – Mumbai Residents, Cellphone user (Non smartphone users were also tested)



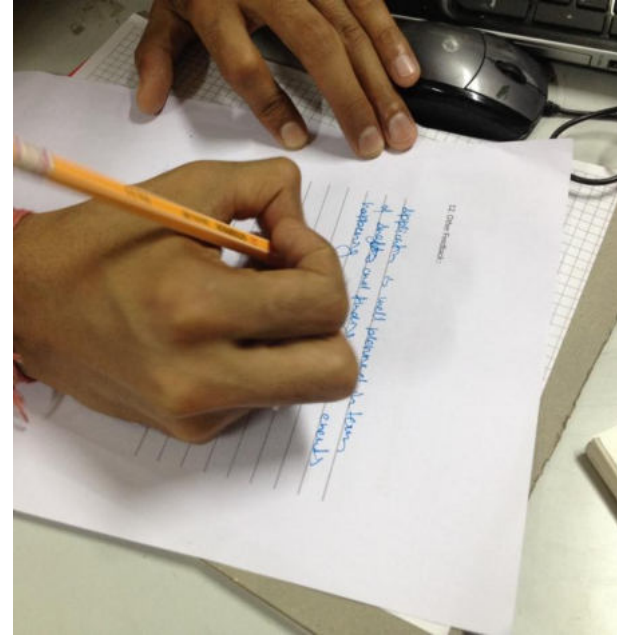
User Testing

- Each user was given 5 minutes to use the application.
- As not every function of clickable prototype was working, assistance was given.



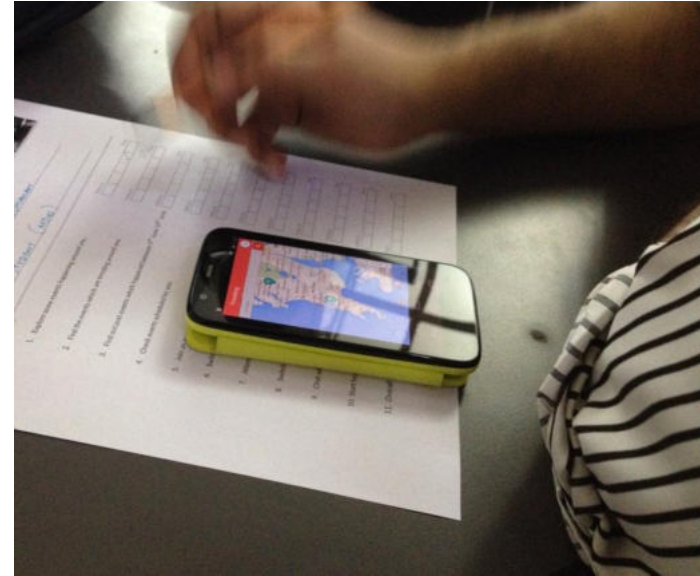
User Testing

- 10 Tasks were given to test the navigation of the app.
 - Explore events trending around you.
 - Find past events which happened between 9th June- 19th June.
 - Attend event from Rightmost Camera angle etc



User Testing

- The average most difficult tasks faced by Smartphone user were,
 - Find out past events which happened between 9th June- 19th June.
 - And
 - Switch to Directional View
- Rest 8 tasks were rated nearly easy.



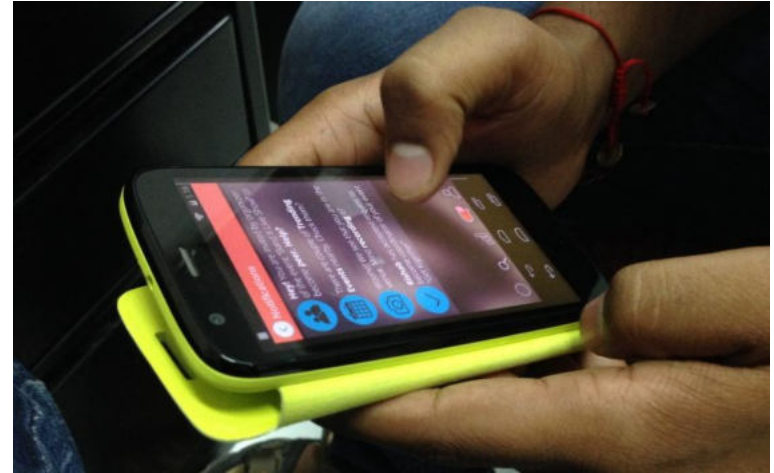
User Testing

- The average most difficult tasks faced by Non Smartphone user were,
 - Find out past events which happened between 9th June- 19th June.
 - And
 - Switch to Directional View
- Rest 8 tasks were rated nearly easy



More Feedbacks

- Navigation is smooth.
- Difficult to figure out Icons – replace some with texts.
- Event details icon is not self explanatory
- Confusion between chatting icon and Notification icon
- Well planned to explore and attend events remotely.
- Colour mapping of event icons is not clear.
- Directional View feature is amazing.



Technical Problems

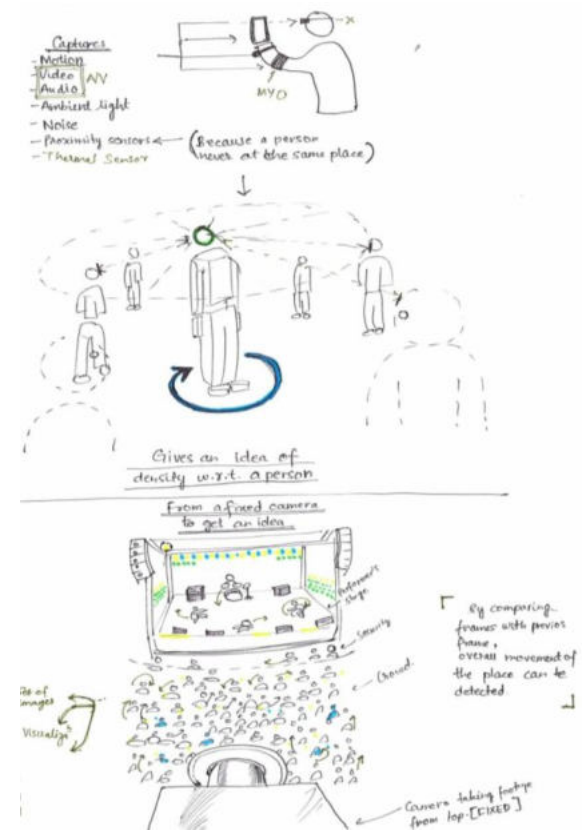
- **Indoor Localization** – Wifi/ GPS can detect location with an error of $\pm 10/20$ meters, so it will get difficult to show camera angles and locations accurately.
- **LAG Designing** – As current internet technology still has lot of lag, it's good to consider it and design according to that, such that when a request is sent or while it is processing, it should react and should show animations, texts etc.

Problems and Suggestions

- **Clever tricks while audio/video stream gets processed** – While checking a stream, it might be fluent; but once you change camera angles, there will be a delay.
- **Aligning different streams** – As every video stream has its own sound track, when we change a camera angle, music might get jittery or sound quality may change completely. A mechanism is required to tackle misaligning of video streams.
- **Smalls clues** telling that you are still connected to the internet.

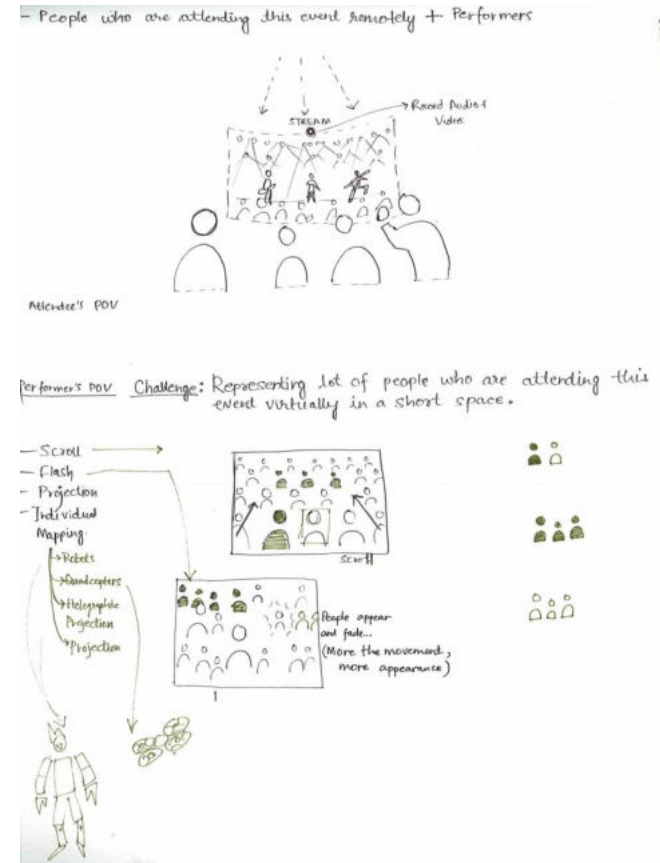
Future Possibilities

- Adding review/rating mechanism for organizers and virtual attendees, so that people who are not organizing quality gigs or sabotaging the system are rated less or blocked.
- Making experiences as immersive as possible. This can be achieved by wearing 3d glasses playing live 3d feed; reflecting concert lightning patterns with an ambient light at remote user's place. Also reflecting information like, heat, crowd movement, etc.



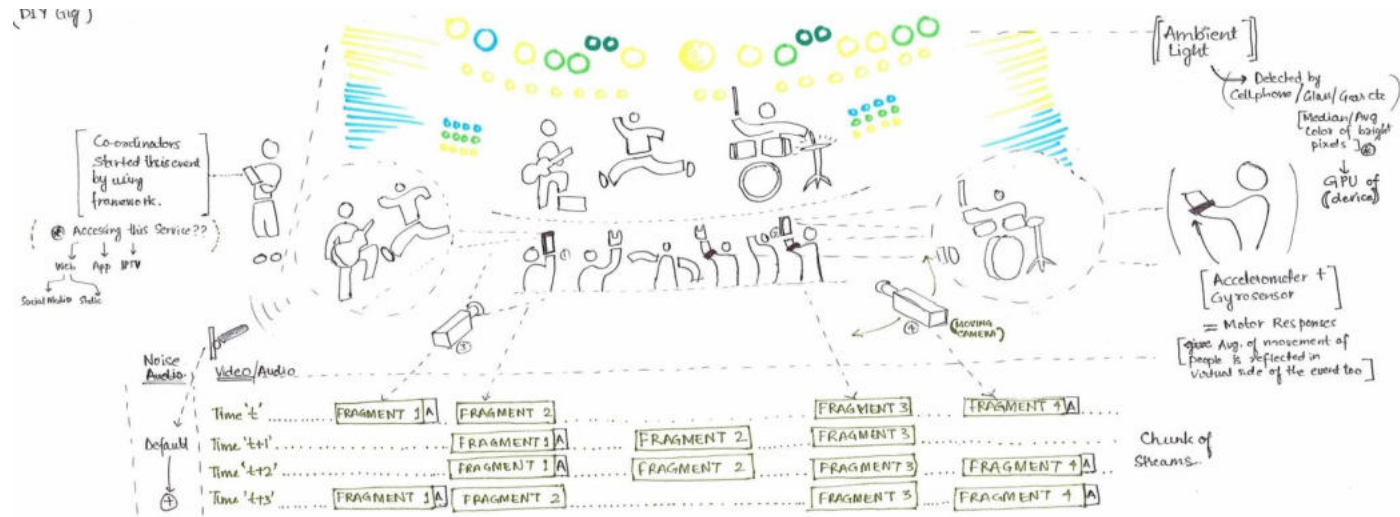
Future Possibilities

- Figuring out Mood of Concert and reflecting it to remote users.
- Immersive participation of Remote attendees.



Future Possibilities

- Concept of Ambient Light.



Thank You