cosmos

A portable interactive computer
for team brainstorming

project overview

brief:

What is the future of computing? Build human, holistic, and essential computing experiences.

duration:

14 weeks

team:

product designers: nathan lu, asli akdemir
graphic designers: yozei wu, lynn lei

role:

My biggest input to the project was crafting a digitally and physically immersive experience. As the team leader, I provided visionary and strategic skills to decision making process.

sponsor:

what is cosmos?

cosmos is a portable, interactive computer for collaboration.

By dictionary definition, cosmos means "the universe seen as a well-ordered whole". HP cosmos carries the same philosophy to workspace.
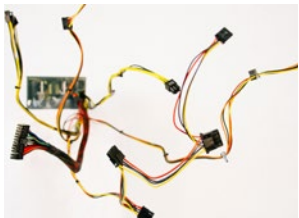
HP asked us:
What is the future of computing?

why the future of computing in workspace?

Collaboration is crucial to success in business. Team meetings are where creative professionals collaborate the most and tools will affect the productivity of the meeting. That is why cosmos is focused on placing HP in the center of collaboration.

technology inspires ideas.

77% of decision-makers agreed or strongly agreed that workplace technology that supports collaborative behaviors, inspires ideas, and accelerates progress.

in person meetings are the best.

76% of workforce respondents believe that in person meetings are the best way to collaborate.

collaboration + technology save time.

Some 82% of business leaders told us that their use of collaboration tools and technologies has improved time savings since deployment.

happy employees = happy profits

Psychology shows that happy workers will lead to happy customers. And workers know this, too — 56% of them said they want to have fun while using the tool.

bigger screens are more fun.

One route to have fun using technology at work is to use large-screen computing devices and visual aids, which appeals to 55% of workers.

need for improvement.

64% say they want improvement in digital whiteboards.

*statistics from forrester (2016)

something ~~we~~ everyone needs

During this project, team meetings were crutial to our work. We did mindmaps on roll paper, worked on the wall using sticky notes, created multiple drives on different cloud systems, and worked on our sketchbooks. The creative juices were flowing, but we had difficulties keeping track of ideas, photographing whiteboards, saving sketches.
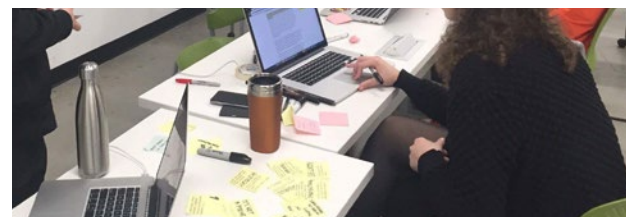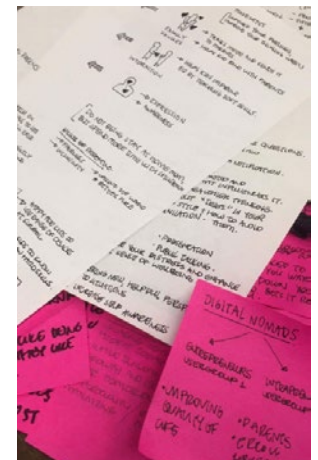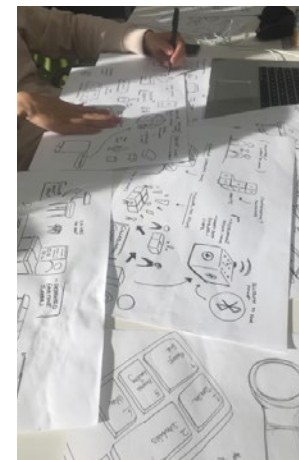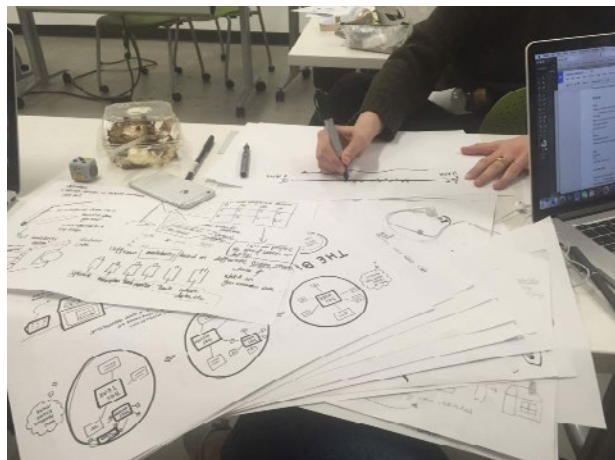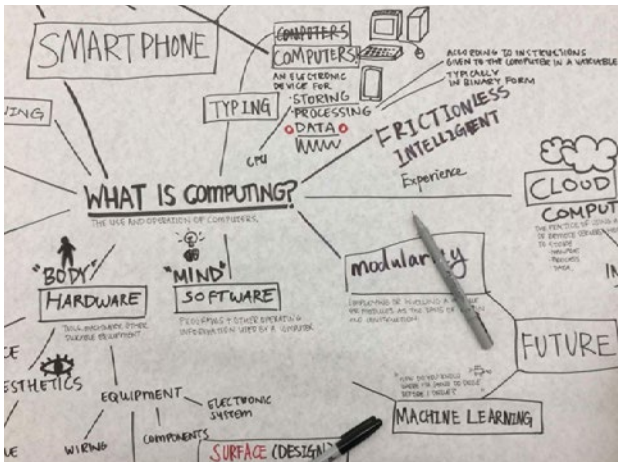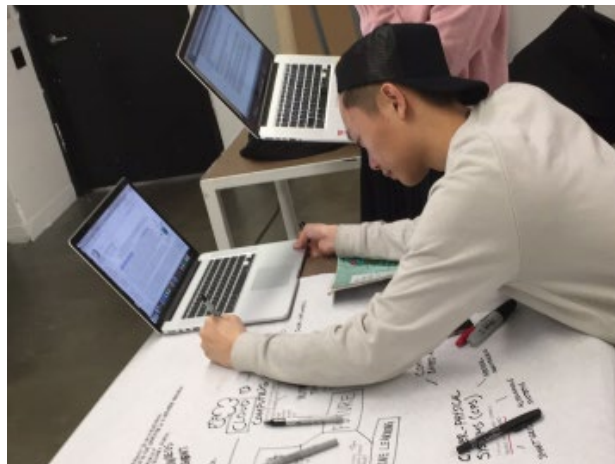
listening to professionals

We interviewed creatives from different industries and levels to understand the process of brainstorming in their perspectives.

"Sketching on paper as team to ideate has limited feedback and engagement."

Jared Luke, CDO

"In person meetings are the best way to collaborate."

Angela Nguyen, UX Designer

"Having cluttered desks leads to information getting lost during the meetings."

Ivan Cruz, Motion Graphic Designer

insights: what we learned

We have taken a close look at meeting rooms,
and all the places people collaborate.

ideas get lost.

To brainstorm, people take notes on
whiteboards, use hundreds of post-it notes,
use roll big sheets of paper. Then they run out
of space. They create shared files on drive,
download all kinds of apps, join in chat
groups.

brainstorming is messy.

There's also the aftermath of messy
brainstorming. After the meeting, instead of
walking out to get lunch, you have to take
pictures of the white board and the post-it
notes, email them to your colleague who
always forgets to take photos, roll up the large
papers, and clean the whiteboard.

it's about the people and ideas.

Even though brainstorming is messy and
chaotic, synergy and creative energy in the
room is incredible. Ideas created and shared
as team, the breakthroughs, failures, and
triumphs. That's what we want to keep.

what's out there?

The current digital platforms bring all team communication to one place, they're organized and centralized. However, they lack in merging the digital and physical to achieve the optimum collaboration amongst teams.

BASECAMP

Strength:
- Organized, centralized, and clear so everyone knows what to do, everyone knows where things stand, and everyone can get what they need without having to ask around all the time.

Weakness:
- Lack of face to face communication
- dependent on internect connection
- may be a bit feature creeping

SPACIOUS

Strength:
- Relatively cheap compare to other co-working space in the market
- Make a great impression with clients and co-workers.
- Fast wifi and work-friendly music lets you stay connected and productive. Free coffee, tea, water and snacks for you and your guests.

Weakness:
- can be distracted from other person
- can't always network with other people
- have to leave before 5 pm
- not super comfortable

GOOGLE DRIVE

Strength:
- Great Search Capabilities
- Password protected view
- View stats , pages read, times viewed, etc.
- Download protection
- Copy and paste protection
- a lot of different fearures

Weakness:
- When it comes to speed, Google is the prover-bial turtle in the race. Slow and steady may win some prizes, but when it comes to saving information, it's not a quality often desired.
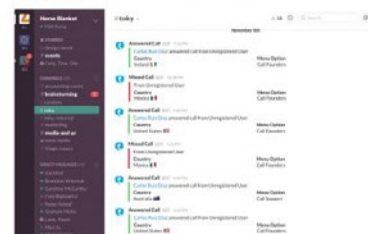- security issues.

WEWORK

Strength:
- Spacious, Common spaces have a distinct aesthetic and vibe that will inspire your team
- includes desks, chairs, desk lamps, and lock-able filing cabinets.

Weakness:
- commuting costs, more CO2 emission which is not sustainable for the environment,
- Potential security issues
- limited personal space
- expernsive

SLACK

Strength:
- All Team Communication is One Place
- Integration with Services We Already Use
- All Content is Searchable from One Search Box
- File Sharing
- One to One and Private Groups

Weakness:
- people like to have something physical to hold upon to and inspire them
- can become a distraction too if you indulge in using it too much

BITRIX 24

Strength:
- time tracking system for business
- tools for task management and file sharing
- One to One and Private Groups

Weakness:
- to many funcyions, maybe feature creeping
- the networking is very similar to Facebook, em-ployee might be distracted from activity stream and other's photo galleries.

what is cosmos about?

We distilled the pain points and aspirations of the users to determine the design goals for cosmos.

goals of the product should be:

organization

productivity

co-creation
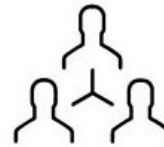

open dialogue

meet John!

"Collaborative tools are useful, but at the same time, they get in the way of productivity as well."

John Luna, Art Director based in LA

Pain Points:

Face to Face Collaboration

Working in Teams
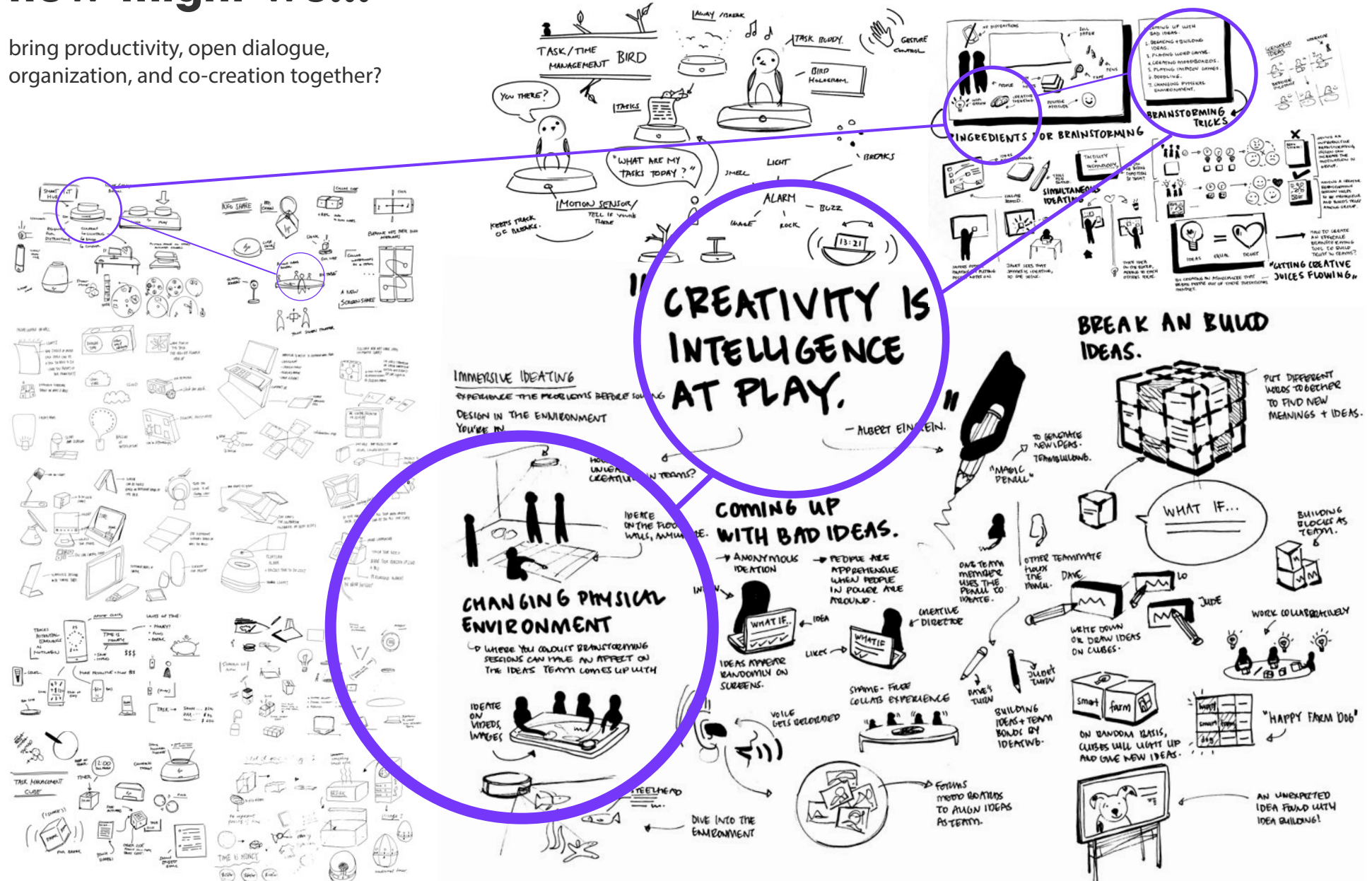
Organized Working Space

Project Based Studio Work

["Besides the white boards in our meeting rooms, we don't really have tools in our studio to collaborate."]

Aspiration:

[An adaptable collaboration device to generate and communicate ideas more effectively as a team.]

how might we...

bring productivity, open dialogue, organization, and co-creation together?

"what if...?"

Asking "what if" questions played important role in our team discussions to find innovative solutions. We explored ideas ranging from seamless turning on experiences to intuative interface designs.

what if the hub turned on when you walk in?
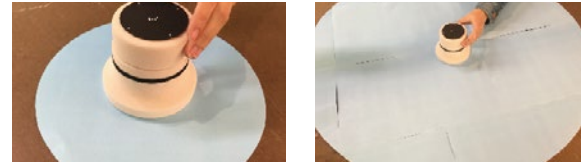

what if the hub turned on by tapping pen?

what if everyone can work on same file?

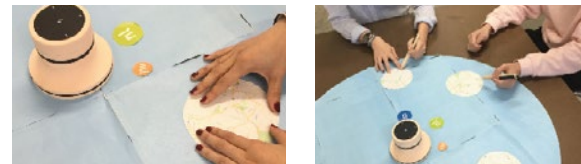## what if we could do web searches on canvas?

what if projection could be any scale?

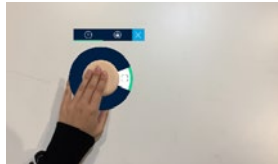## what if sketches can be shared?

what if we didn't paper handouts?

what if we could experience sketches 1:1?

what if we signed in by fingerprint?

what if the pen had touch bar menu?

what if the hub had dial for control?

what if the pen helped to organize canvas?

what if the pen accessed our cloud?

what if hub projected on the wall?

what if the hub helped with choosing ideas?

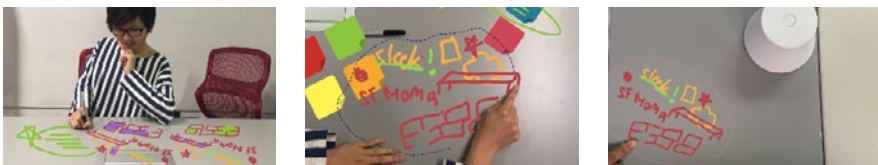## what if the hub was portable?

what if we signed in by tapping the hub?

what if the controls on the pen were analog?

what if the pen accessed our cloud?

what if the pen accessed to the cloud securely?

what if the pen only did image search?

what if the hub helped to start a dialog?

what if the we could sketch on the floor?

what if it helped teams bond?

muscow: user experience

Thinking about the user experience and the goals of the system in mind,
we refined the features cosmos must, should, could, and not have.

Revision 1

Have:
Internet Search (mobile interface)
Cloud (access to storage)
Portability
Sign in by tap (turn on pen too)
Permanent sketch (not erasable)
Individualized pens

Maybe:
Inspiration games
Positive affirmation (favorite)

Not:
Isolation
Keyboard
Complex programs

Revision 2

Have:
Low Fidelity
Photo Search
Cloud (saving + access to storage)
Portability
Sign in by tap (turn on pen too)
Permanent sketch (not erasable)
Individualized pens
Scalable (1:1 scale)
Record Visuals
Fingerprint reading (security)

Maybe:
Presentation
Gesture control
Remote work

Not:
Google Search
Keyboard
Complex programs (CAD)
Holograms
Voice interaction

Revision 3

Have:
Low Fidelity
Photo Search
Cloud (saving + access to storage)
Portability
Sign in by tap (turn on pen too)
Permanent sketch (not erasable)
Individualized pens
Scalable (1:1 scale)
Record Visuals
Fingerprint reading (security)

Maybe:
Presentation
Gesture control
Remote work

Not:
Google Search
Keyboard
Complex programs (CAD)
Holograms
Voice interaction

why "cosmos"?

The meaning of cosmos is "the universe seen as a complex and orderly system; the opposite of chaos". It has smaller parts, like planets and stars, and bigger parts like solar systems and galaxies. They all work well together in harmony. Just like teams that do brainstorming. Within cosmos, there are two parts: microcosmos and macrocosmos.

what is macrocosmos?

Macrocosmos, is the whole structure, the solar systems, galaxies, your team. They're all different, but work well to create something unique.

With the hub, team's creativity is unleashed.

what is microcosmos?

Microcosmos, is a small part of a complex structure. This would be the planets, stars, a teammate.

And the pen is the tool to express teammate's unique selves.

cosmos with features

the hub of new ideas

Your ideas are limitless and infinite. cosmos is the platform where you and your team explore and dive deep into uncharted ideas, and capture them to discuss new possibilities.
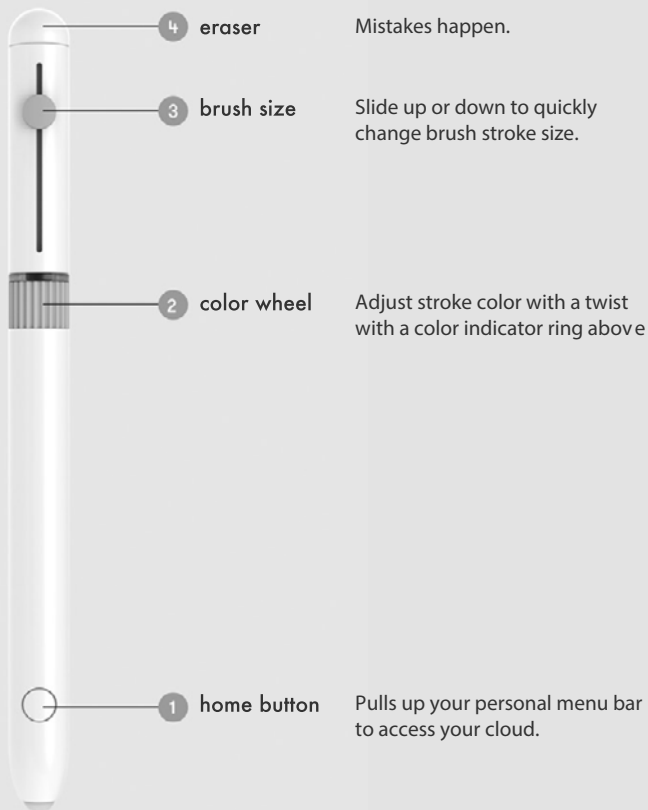

how does the hub work?

The hub is portable and makes ever y surface interactive to ideate. Multi-touch projection technology creates an endless canvas, so your team never runs out of space.

get to know cosmos

the pen is your personal tool.

4 eraser — Mistakes happen.

3 brush size — Slide up or down to quickly change brush stroke size.

2 color wheel — Adjust stroke color with a twist with a color indicator ring above

1 home button — Pulls up your personal menu bar to access your cloud.

the hub is your co-creation tool.

8 light ring — Notification light to show alerts of the canvas.

7 mission control — Adjust macro-settings of the team canvas.

6 projector — Displays the interface/canvas.

5 gesture tracker — Processes hand interactions for the hub

the ecosystem of cosmos

cosmos puts the users in the center, and the hub
and pen are the tools for the users to have an open
dialogue and work productively.
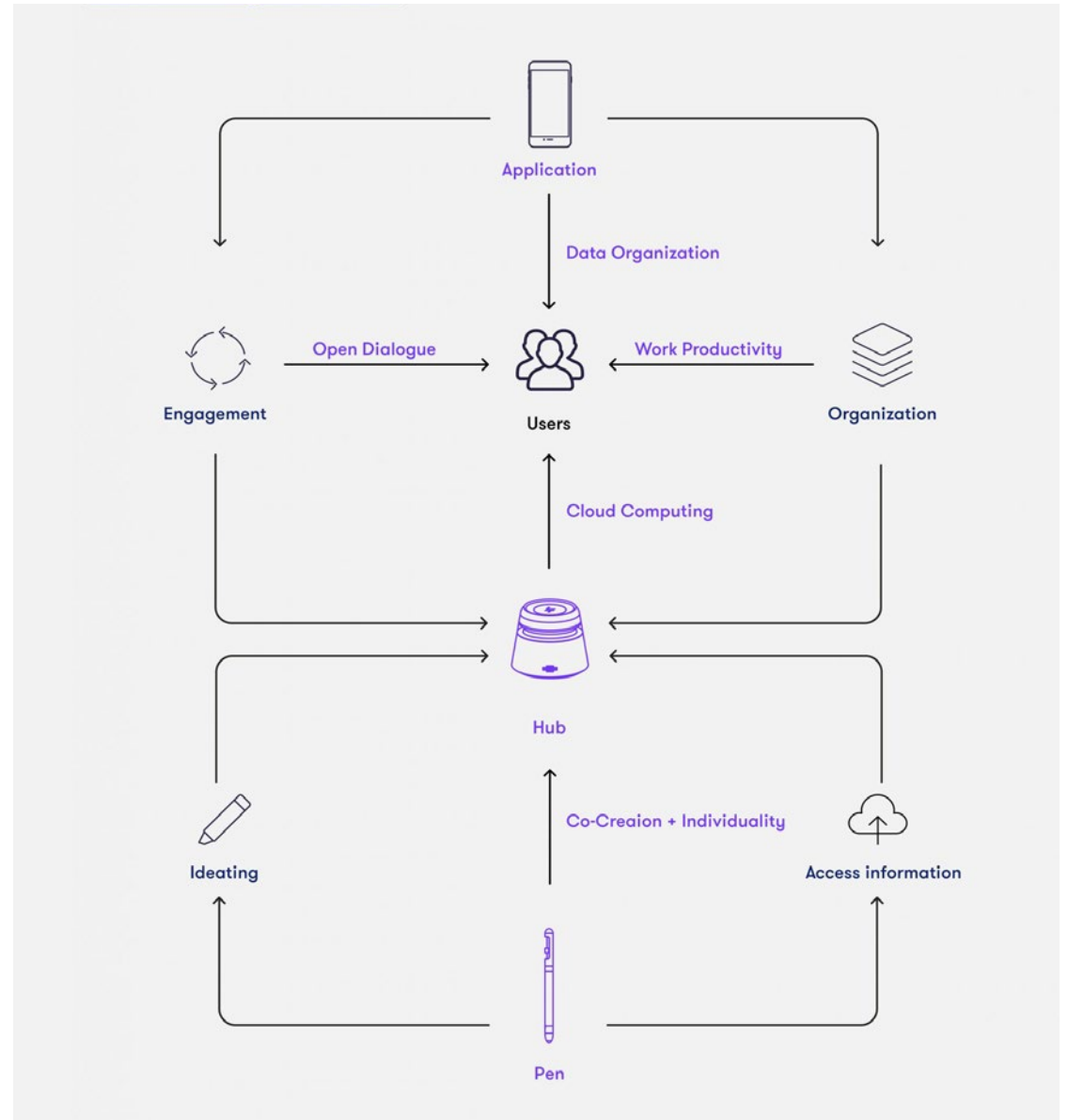
how does cosmos work?

rotate to start

the hub projection makes any surface interative to ideate. it can create a new canvas, access your cloud or scale the canvas.

slide up/down to size

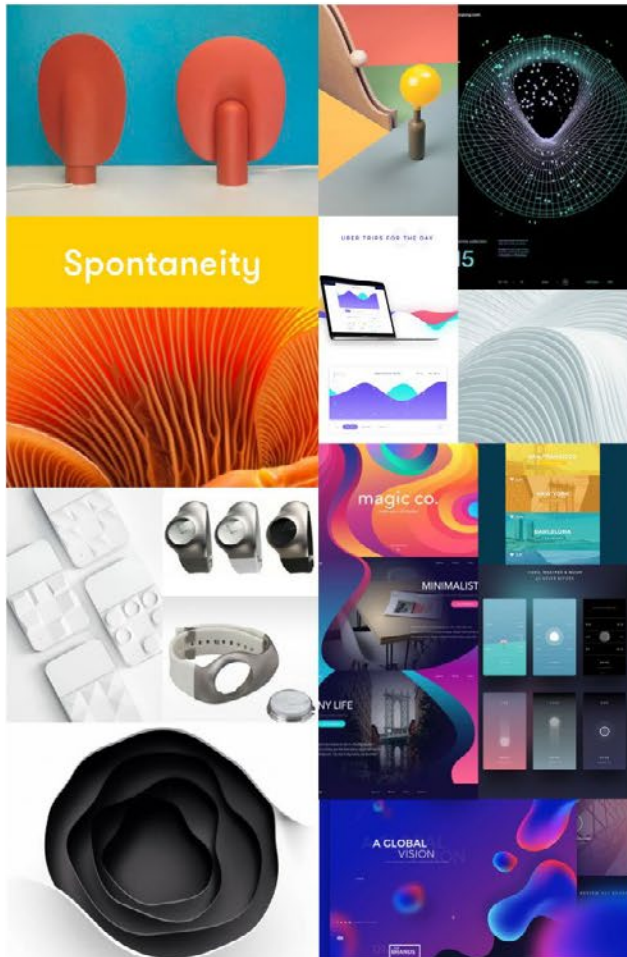adjust your pen's brush size by sliding pen's glide up and down.

twist to pick color

unleash your creativity by twisting the color wheel on the pen to choose color.

brand guidewords

The interface follows the guidewords of cosmos: synergy, spontaneity and playfulness. The intiuative design allows teammates to focus on the ideas as they navigate easily.

Spontaneity

Playfulness
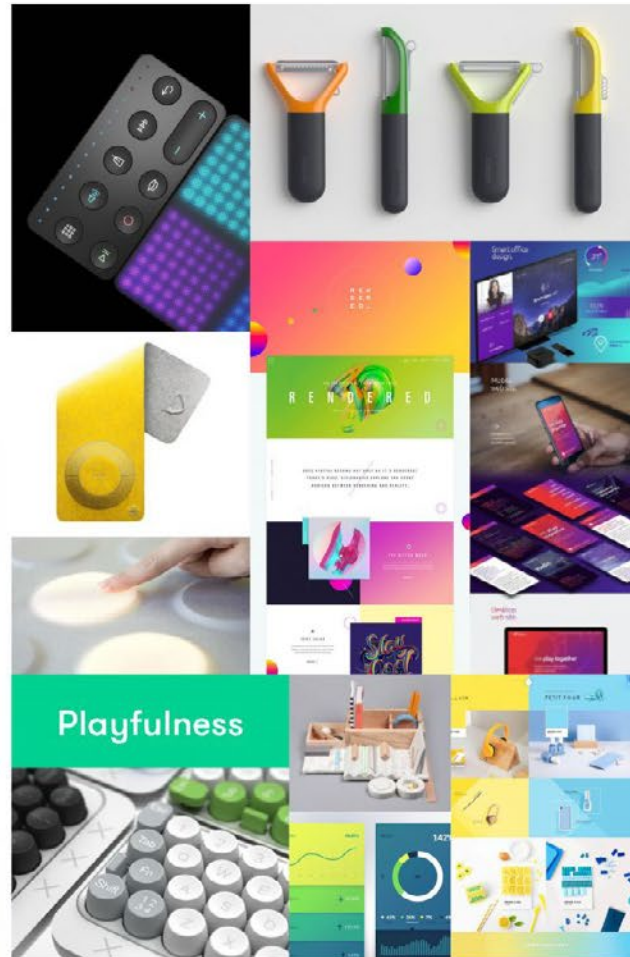
Synergy
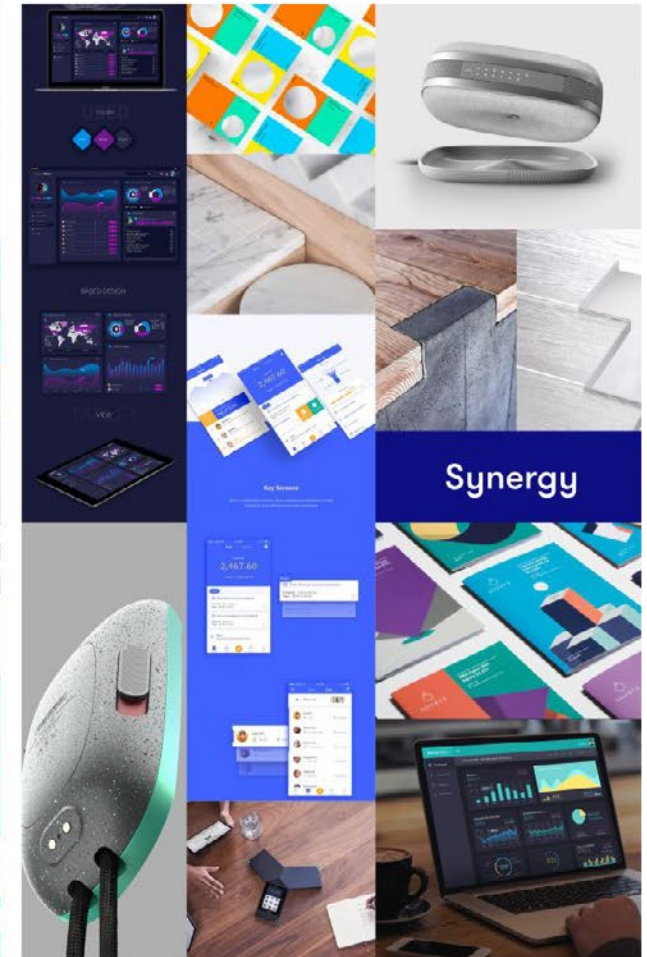
logo ideation

brand style guide

The aesthetics of cosmos is inspired by the harmony of the universe. Cosmos has a circular interface to represent unity and to bring people together. Macrocosmos menu revolves around the hub which corresponds to our universe brand identity. It has a galaxy inspired purple-green color palette.

logo

typography

Circular

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

color palette

primary

C:70 M:75 Y:0 K:0

C:56 M:0 Y:39 K:0

C:0 M:0 Y:0 K:0

secondary

iconagraphy

Upload Canvas

Database

Starred Canvas

Focus

Scale

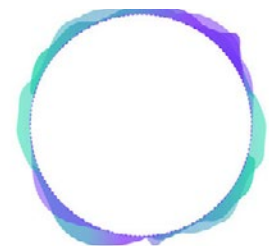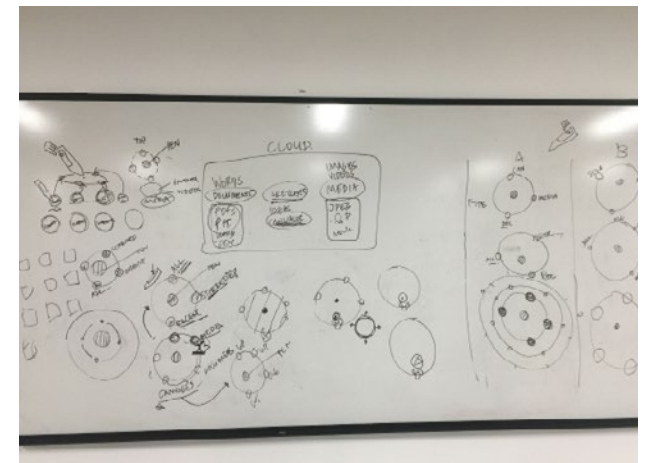Setting

Search

Volume

Wifi

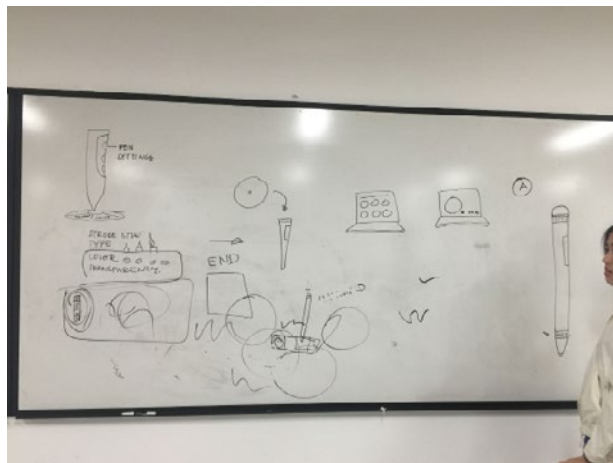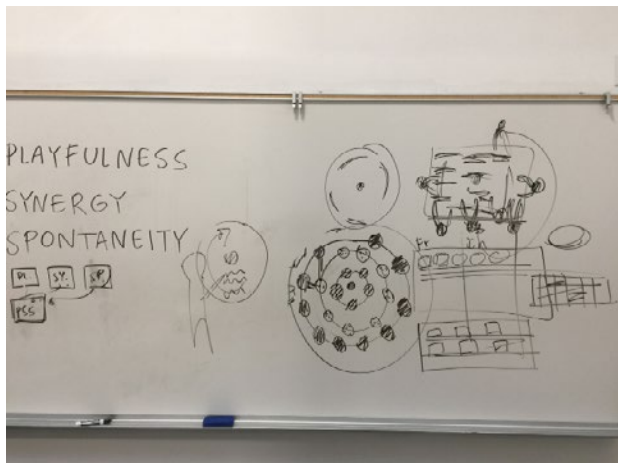Media

Star

Document

New Canvas
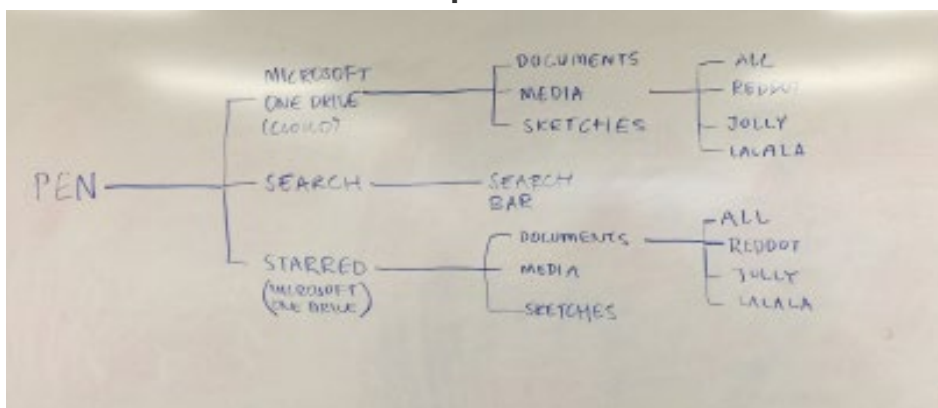
Sketches

graphic element
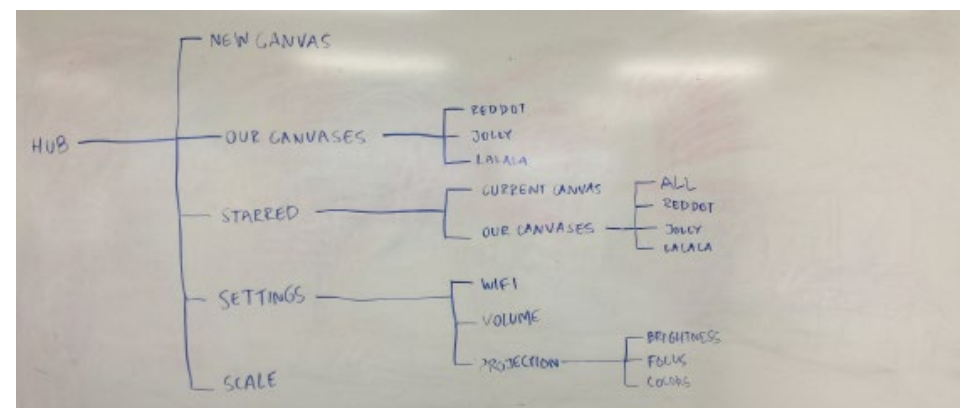
hashing out user interface

We followed the guidewords synergy, spontaneity, and playfulness to design an interface that can give the best user-friendly experience.

final wireframe for the pen menu:


final wireframe for the hub menu:

user interface mock-ups

final features:

Signing in
        Color notifications
Scaling canvas
        Sizing
        Locking the size
Menu
        New canvas
        Load canvas
Selection interaction
Image search
        Interaction of searching
        Image gallery
        Closing the search
Dragging images from search to canvas
Starred search
Cloud access
        Cloud menu
        Cloud folders
Pen stroke
        Color
        Density
Notes
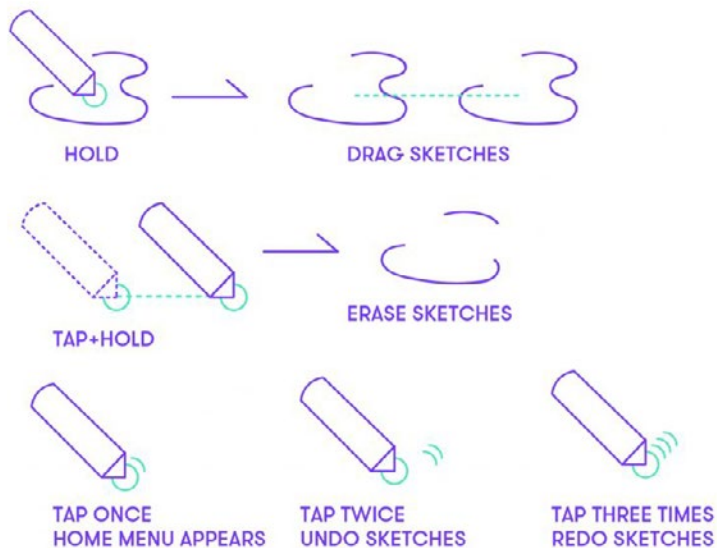Feedback of saving time lapse
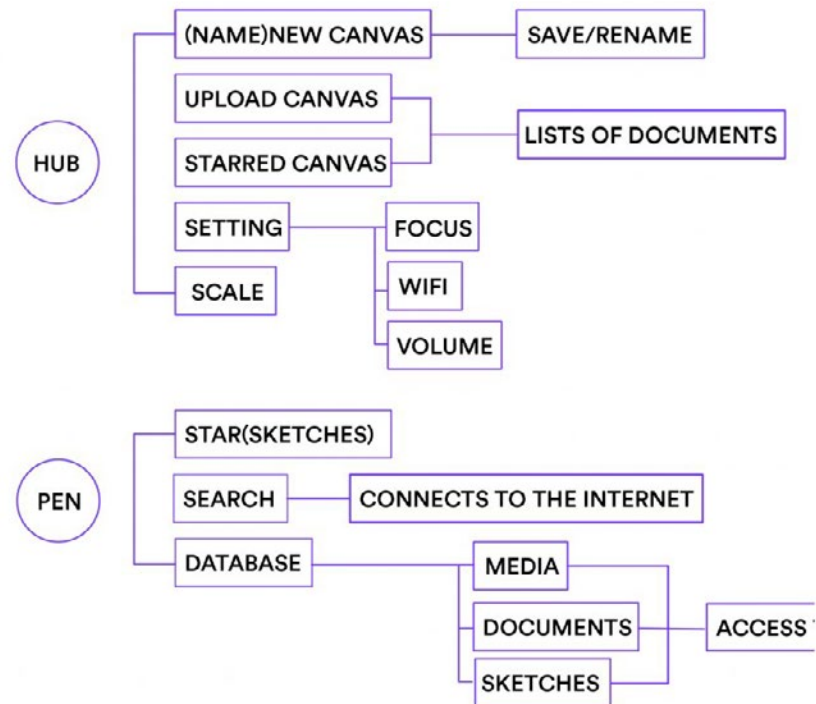
final wireframe for the pen menu:
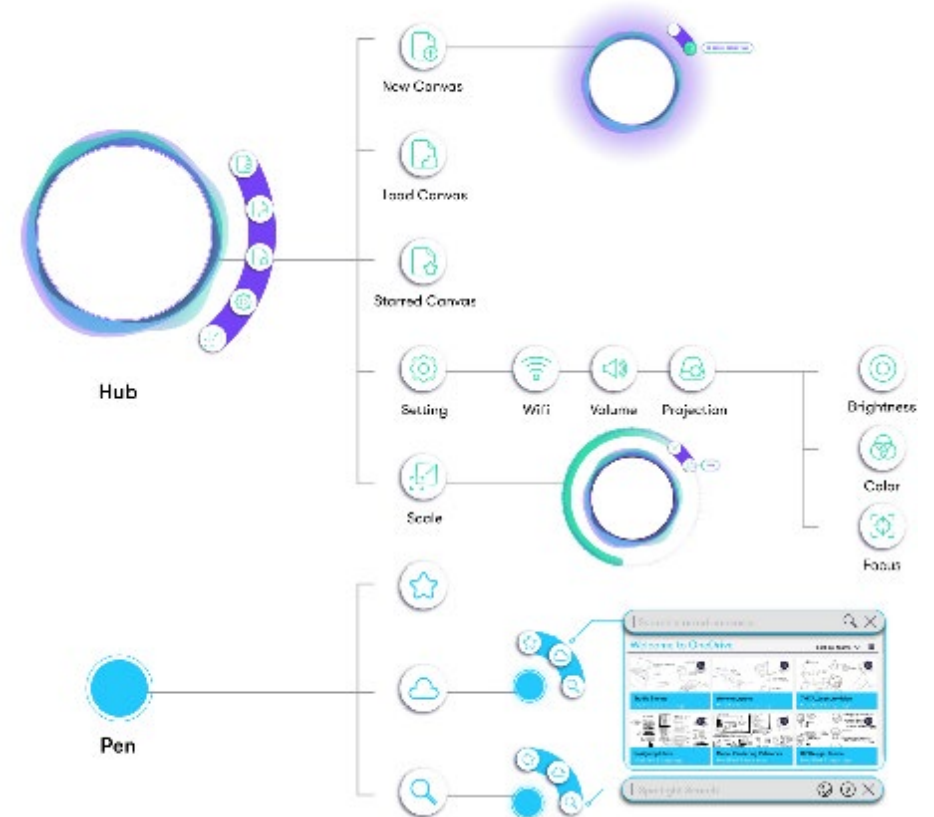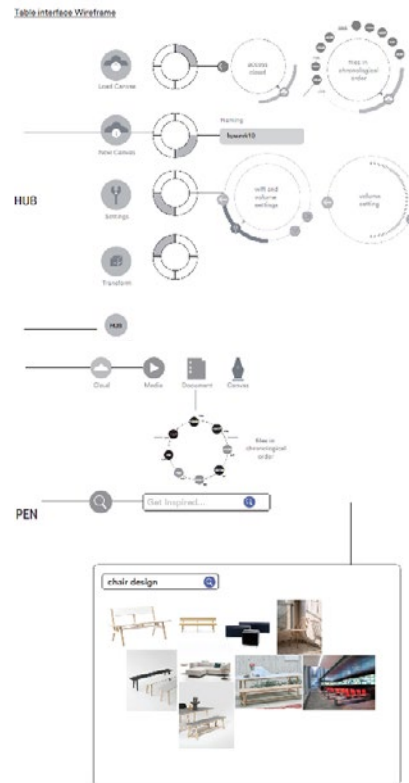
cosmos experience language

We studied and explored new language the interface brings to the users. Going with what feels the most natural, we crafted the interface keeping in mind what is essential.

Gesture Studies

HOLD → DRAG SKETCHES

TAP+HOLD → ERASE SKETCHES

TAP ONCE
HOME MENU APPEARS

TAP TWICE
UNDO SKETCHES

TAP THREE TIMES
REDO SKETCHES

Information Breakdown

HUB
- (NAME)NEW CANVAS — SAVE/RENAME
- UPLOAD CANVAS
- STARRED CANVAS — LISTS OF DOCUMENTS
- SETTING — FOCUS
- SCALE — WIFI
- VOLUME

PEN
- STAR(SKETCHES)
- SEARCH — CONNECTS TO THE INTERNET
- DATABASE — MEDIA
- DOCUMENTS — ACCESS
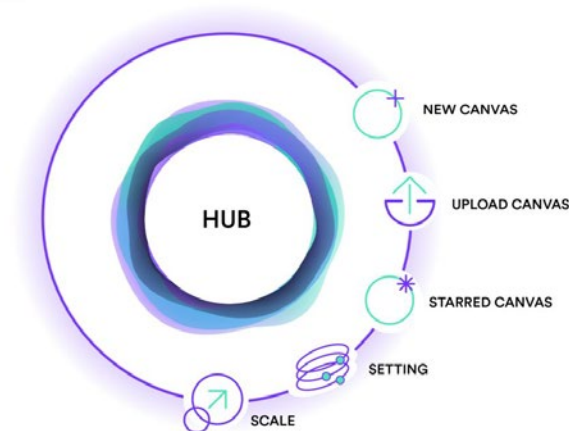- SKETCHES

refined user interface

The interface follows the guidewords of cosmos: synergy, spontaneity and playfulness. The intiuative design allows teammates to focus on the ideas as they navigate easily.
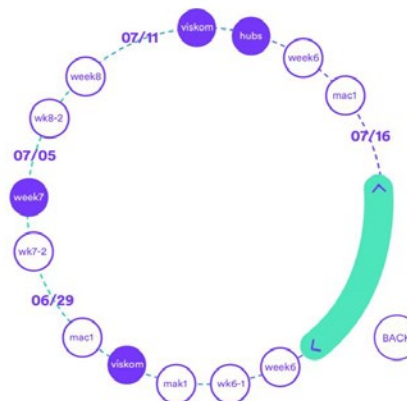
Pen Interface

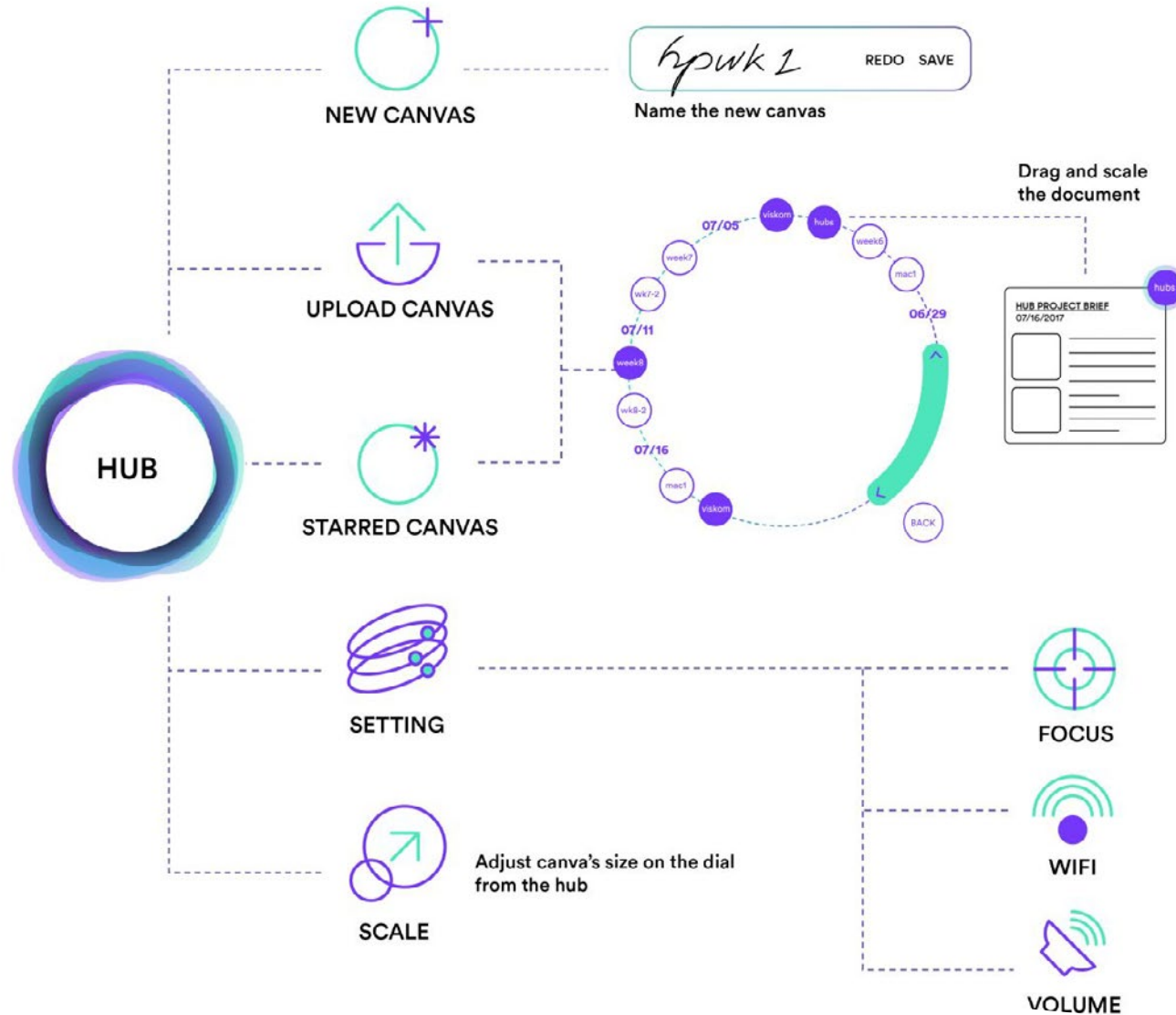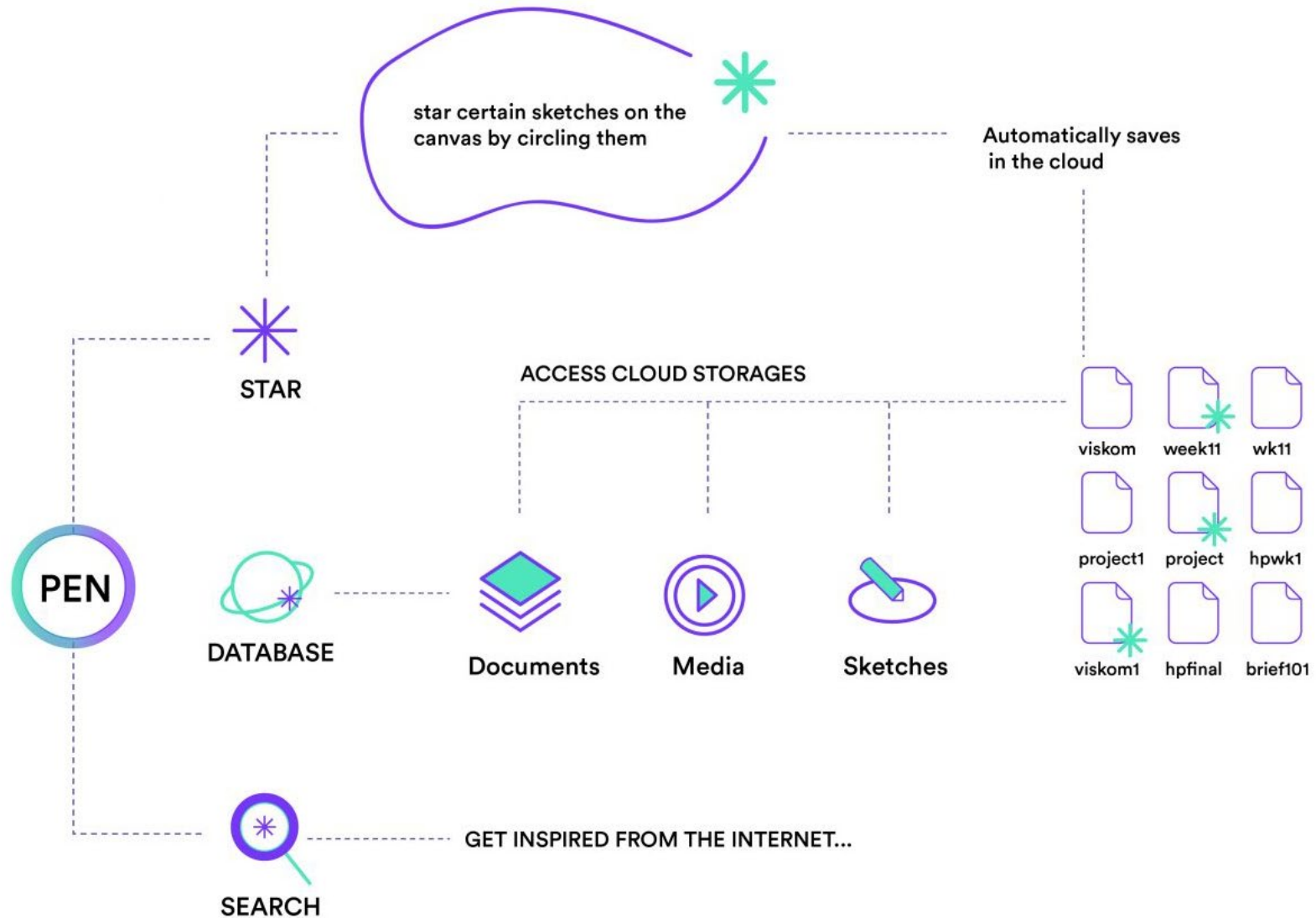## Hub Interface

*user interface design by yozei wu and lynn lei

the system of the hub

The hub interface is designed to be interacted by the team. It has access to canvases, scaling options, and settings.

NEW CANVAS

hpwk 1   REDO   SAVE

Name the new canvas

UPLOAD CANVAS

Drag and scale the document

07/05   viskom   hubs   week6   mac1   06/29

week7   wk7-2   07/11   week8   wk8-2   07/16   mac1   viskom

HUB PROJECT BRIEF
07/16/2017

hubs

BACK

STARRED CANVAS

HUB

SETTING

FOCUS

SCALE

Adjust canva's size on the dial from the hub

WIFI

VOLUME

the system of the pen

The pen interface is designed to be interacted by the teammate. It has access to the individual clouds, database, and search engine.


star certain sketches on the canvas by circling them

Automatically saves in the cloud

STAR

ACCESS CLOUD STORAGES

PEN

DATABASE

Documents

Media

Sketches

viskom   week11   wk11

project1   project   hpwk1

viskom1   hpfinal   brief101

GET INSPIRED FROM THE INTERNET...

SEARCH

beyond the workspace

We investigated possible applications beyond workspace to create more market space for the product.

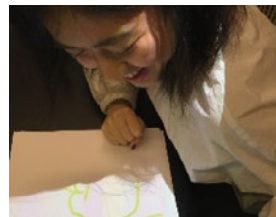## education: in-class exercises for teams
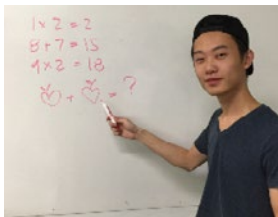
Strengths
Promotes creativity and teamwork
Interactive and playful
Involved learning experience
Heighten communication + relationships
Project-based collaboration
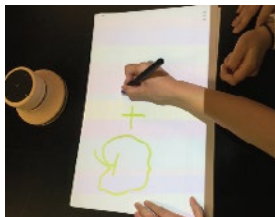
Weakness
Distraction if not used properly
New learning curve
Cost prohibitive

Threats
Holistic approach
Remote usage

Opportunities
Cost effective solution
Sustainability (paper+post-its)
Student-based learning
Portability (anywhere + any surface)

sports: coaching board for strategy

Strengths
Scalable 1:1 to floor play
Portable
Team involvement
Replay review
Immersion in the game

Weakness
Surface/space of projection
Convenience of pens
Inconvenience of setting up

Opportunities
Advertising

Threats
More expensive than competition
  Whiteboard
  Clipboard
  Chalkboard
  Paper+pen
  Ipad
High-fidelity apps

theater: director's feedback for rehearsals

Strengths
Scalability 1:1
Specific instructions (heightened communication)
Participation of actors

Weakness
Big scale surface (fidelity)
Visual disruption/lighting
Opportunities
Costs (vs paper+pen)

Opportunities
Untapped market
Real-time feedback

also:

museum: interactive experiences for kids (educational games)

fashion: sketching on fabric and testing cmf options

cosmos for HP

cosmos is beneficial for the ecosystem of the professional world. All stakeholders are considered: It brings value to the users, the companies, and HP.

For the users

cosmos fives the user an interactive and unlimited collaboration process. It organizes information to allow more time for co-creation by storing sessions to continue and review by them later on. It builds intimacy amongst teammates and creates and open-minded setting to ideate.

For HP

HP can expand on their work/of fice product line and innovate by providing a platform that goes beyond physical products. It gives HP new insights and directions for the future of work and collaboration. With B2B business model, HP sells cosmos to the companies and creative agencies.
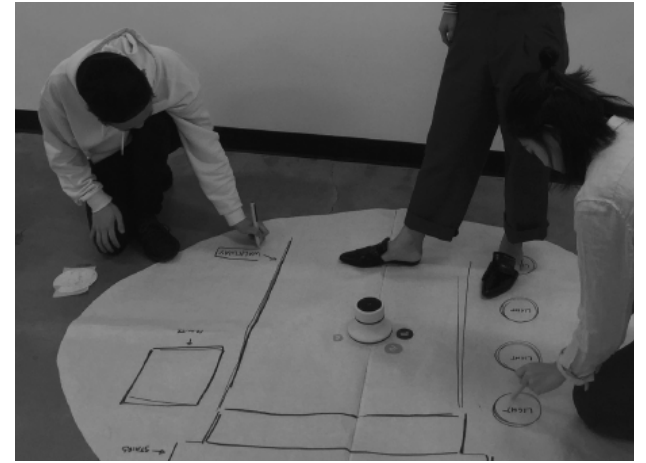
For the companies

The system of cosmos increases the productivity of the companies. By allowing more materials to flow between teams, companies can track and store information, and be more innovative in their ideation process.

making of cosmos
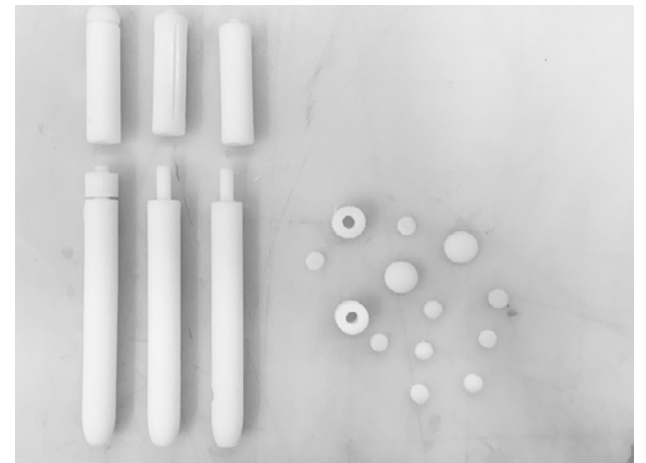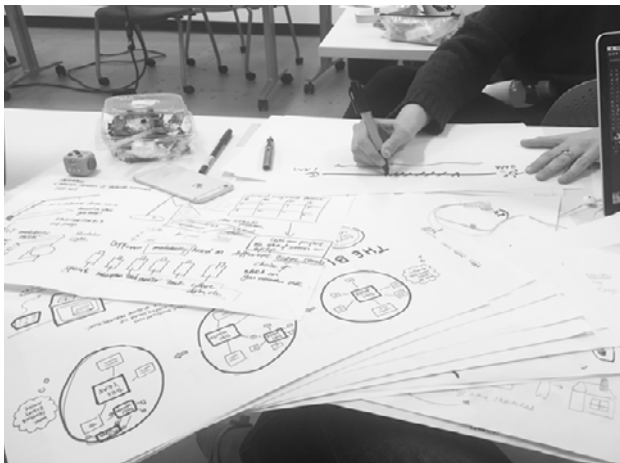
Cosmos has received HP Achievement Award, awarded by HP.

Cosmos is in the process of being featured in *Interaction for Designers: How to Make Things People Love* by Brian Boyle.