

P2 Project Report

An animated short video on The Evolution of Communication devices

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Sheet of Approval

This design project report entitled ‘An animated short video on The Evolution of Communication devices’, by Akanksha Murmure (16U130014) is approved in partial fulfilment of the requirements for Bachelor of Design (B.Des) Degree at IDC School of Design, IIT Bombay.

External examiner:

Internal examiner:

Project guide:

Chairman:

Declaration

I hereby declare that this written submission submitted to IDC, IIT Bombay, is a record of an original work done by me. This written submission represents my ideas in my words, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misprinted or falsified any Idea/ fact/ source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

Akanksha M.
(16U130014)

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Introduction

Communication meaning 'to share' is an important need for mankind. As Aristotle said, "Man is by nature a social animal" it has become a basic need to bring about relationships with fellow men, share and build about a society. It's said, better and direct communication is the key to better relationships. Starting from phones and other gadgets, the internet, the social media, to face-to-face communication and to the basic body language, we use a huge number of things to communicate. But did we know that the evolution of communication ranges back to cave paintings? And isn't limited to the technologies we use?

Motivation

I, personally interested in illustrations and visual art, wanted to explore more in depth into this creative fields. I have priorly worked on motion graphics but 2d animation is an interesting field that has always fascinated me. This being a great opportunity to learn more about animation, I took forward to making this short video.

Research
Data collection

Data collection

(EVOLUTION OF COMMUNICATION - STONE AGE TO MODERN AGE, Jul 12, 2016)
<https://youtu.be/oxTUC5I22LU>

The whole journey of communication started with the caveman. The cavemen used to gather around a fire to discuss their day to day activities. We can compare this to modern day social networking sites such as facebook. The one sudden day they decided to record their activities or knowledge. The cavemen then started to inscribing on the the caves. We can compare this to modern-day blogging. The problem with this communication method was it was localised. When people started moving out of the caves, long distance communication became very important.

Smoke Signal

This was the first long distance communication. It was used in Northern America where each tribe has its own signalling system. A smoke from top of the hill signified danger. Smoke signal was also used in Ancient China. The soldiers stationed at the Great Wall would alert for danger using smoke signal from tower to tower. In this way they could transmit the message as far as 750km within a few hours. The smoke signal is still used in the Vatican to indicate the selection of new Pope.

Pigeons

Due to their natural homing ability pigeons were extensively used for long distance communication. The Pigeons were used by Persians, Romans, Greeks, Mughals. In the 19th Century, Pigeons were also used to transmit stock quotations from one city to another. Cher Ami, a homing pigeon, was awarded the French War Cross for her services during world war 1. TV series Game of Thrones has shown the use of Raven instead of pigeon for long-distance communication.

Pony Express

From ancient time Kings have been using human messenger to relay messages. The pony express was a first of its kind mail service delivering messages, mails, newspapers and small packages by horseback using small relay stations. It is regarded as the first courier service. It was used in the mid 19th Century to communicate between East Coast and West Coast of America.

Semaphore Flag

Semaphore flag was used in maritime during the late 19th century. The word semaphore is derived from the Greek word sema meaning sign and phero meaning bearer. It is the telegraphy system conveying information at a distance

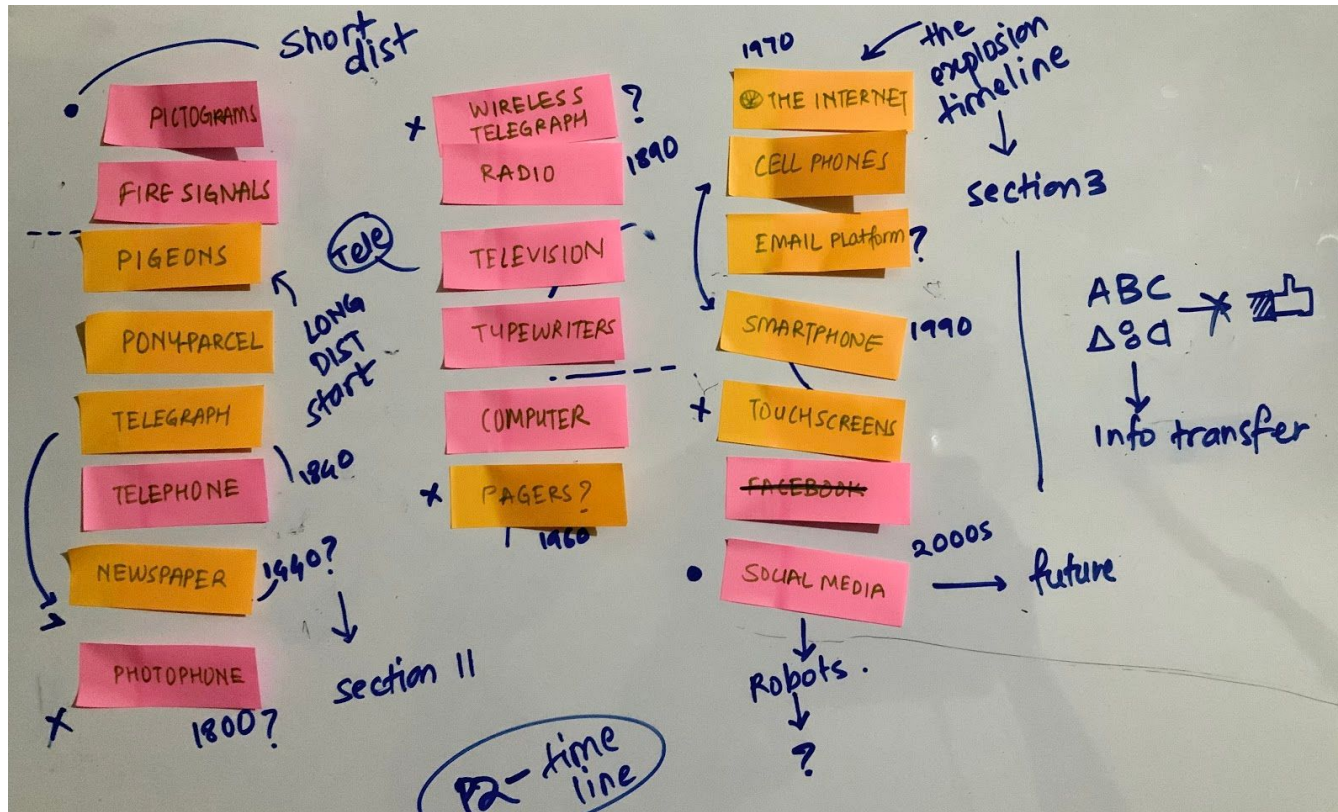
Understanding the history

As I began reading various sites, I realised that communication starts from the era of cavemen, as they learnt to transfer information onto cave walls. The evolution is not limited to only gadgets but includes different sorts of means of information transfer like smoke signals and parcel services. I gathered this information from many websites and compiled it into a document. I then began listing them down chronologically, according to their years of invention, also highlighting various 'Did you know' comments and unusual facts that I came across. I wasn't sure whether I would add voiceover to my video, but I tried to keep that option open. Soon, a small problem came to light.

Filtering the unwanted

Different websites showed different information. This, mainly the years of invention, affected the timeline I had created. With further fact-checking, I reached a rough timeline in which I chose to round up the years to the nearest 100s; this reduced the confusion significantly.

Since, the list had too many items, I then weeded out, keeping those that were significant, which brought about some kind of change in our history. In many videos on this topic, some elements were repeated regardless of their significance in history. I too decided to keep the ones that are popular.



Final List

- Pictograms (cave paintings)
- Smoke signals
- Carrier pigeons
- Pony express
- Newspapers (1440s)
- Telephone (1870s)
- Radio (1890s)
- Television (1920s)
- Typewriters (1930s)
- Computers (1950s)
- Pagers (1960s)
- Internet (1970s)
- Cellular phones (1980s)
- Emailing platforms (1990s)
- Smartphones (1990s)
- Social media (2000s)

Visual style

Analysis

Existing works

I watched a lot of the videos available on this topic, studying and analysing the ways in which they depicted the visuals and connected the evolutionary process. Most videos being slides of actual images, told the story aided by voiceovers. There were a few animated videos that I came across. Some of the one's that inspired me are described below.

Highlighted text = Certain key factors by which I was influenced.

Video 1

A Brief History of Communication

<https://youtu.be/rDkxsNmKDGk>

- No narration
- Heavy digital motion graphics
- **Camera effects** like pan, zoom for transitions
- Black ink silhouettes while **Communication as a red blob**
- Direct human actions

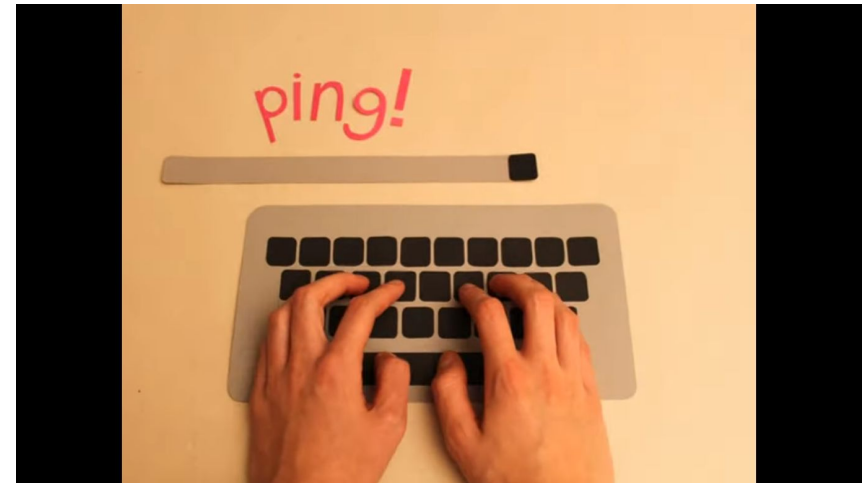


Video 2

Evolution of Communication

<https://youtu.be/UJvsGBjy2U>

- No narration
- Paper cut Stop motion
- Cut transitions
- Minimal shapes but multicoloured
- Representative, comical actions

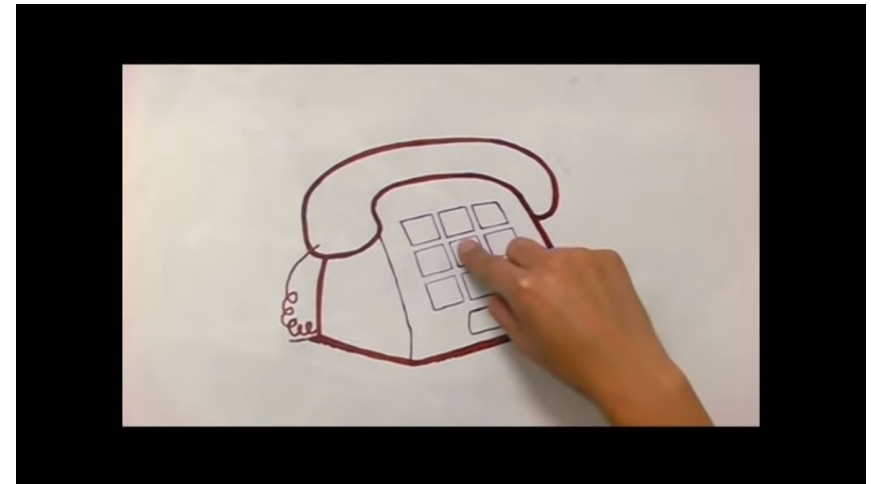


Video 3

A breif history of communication

<https://youtu.be/WfCUxeQ2VSE>

- No narration
- Hand drawn frame by frame
- Visually playful transitions
- Multicolour, outlined cartoon, no backgrounds
- Metaphorical, comical actions

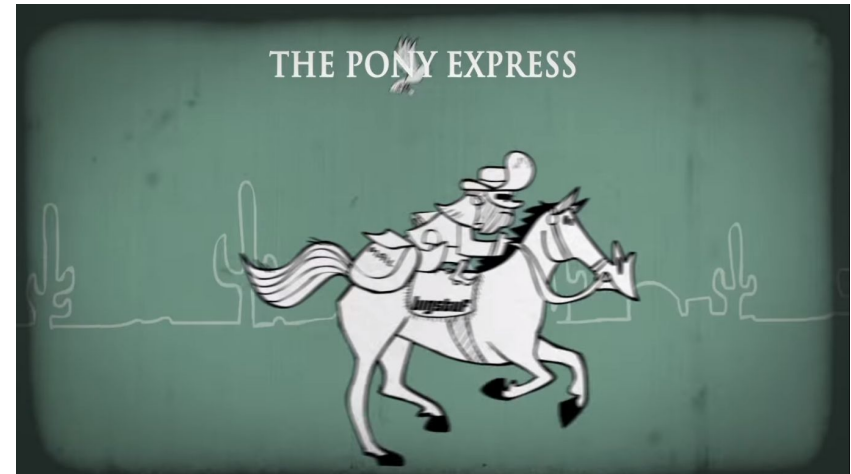


Video 4

A Brief History of Communication

<https://youtu.be/oay2Qy3wBe8>

- Voice overs in semi-formal language
- Digital motion graphics
- Pan transitions
- Single colour, **Cartoony outlines**, vignette
- Crisp **direct actions**



Writing the
Story/Script

Weaving connections

The data was a list of events happening over a vast time period and in various parts of the world. Therefore, the first challenge was to shorten it and imagine everything into a smaller space. Then to portray evolution from one object to another, I was required to fill in the spaces between them. It became necessary to focus more on the transitions due to the huge part they played in the storyline.

Shot	Visual	Audible
MS	two men in view, man A talks, man B in confusion. (shots of yellow fired at man B, but the miss him 8 go past)	audible gibberish, (boing boing bouncing sounds)
	man A saddens, gets an idea	bulb lighting clink
CS	closeup scrapping shots (yellow along painted lines)	
WS	tada! man A shows a cave painting proudly	
CS	man B's closeup, squinted eyes as if reading, (yellow small balls penetrating his head) → enlightened expression	

	sound outside, both startled look out, man B goes out, Question mark smoke signal in air	small boom
MS	man B waves a cloth over a fire in outside , sends up smoke in shape of victory sign	smoke rising shhhhs
WS	yellow balls Bouncing from one to another mountain, as they bounce, smoke rises in air making thumbs-up	boing boing bounce
	a pigeon flies too close to camera and camera follows it) encased with yellow bag and a cap	
	lands on a window, delivers letter to a man C	chirp, chirp
MS	Small letter unfolds to be a big one :P, reads it and exclaims pfft, uses it cover a parcel	
WS	man C riding a horse, pony express , with yellow parcel bags	
CS	delivers the parcel, hand to hand close shot	
WS	parcel was a bomb, explodes	booom!

	screen tears up, zoom out, a toddler biting on a newspaper with the above news held by someone	paper tearing
MS	toddler crawls towards a telephone , picks and happy blubber	blablabala gibberish
	yellow signal dot through a wire, camera follows	
	number of wires increase into an entangled bunch, scissor cuts a wire, the signal dot jumps into air	
WS	zoom out, yellow balls bouncing across cityscape,	boing bounce sounds
	camera follows a yellow ball, goes into a window, enters a radio's antenna, soon music starts playing	old European music
	a hand changes frequency, buzzing increases	radio buzz
CS	a bee flies in buzzing, camera follows, it to a flower	buzz continues
	spat! zoom out, bee hits TV screen	spat!

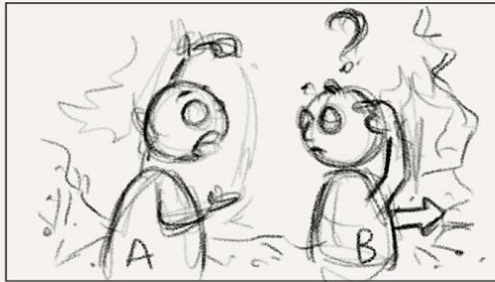
	TV goes buzz, a hand comes and hits the top, yellow stuff starts playing	buzz, hand slaps, music
	upper half of the tv moves sideways, turning into a typewriter , buttons pop on the lower half,	
	a hand come in types randomly, yellow glow pops and vanishes on every pressed key, hands moves the paper sideways (next line)	typing, line spacer sound
EC	breaks off the lever (that's used to move paper to next line) and takes to another table	walking
	forces it into a computer's keyboard, turns into an arrowed enter key, and presses the key	small smash, taps
MS	an old big computer monitor appears, a dos code scrolling on the screen, yellow balls keep bouncing out of the screen (like popcorns)	pops
	a mouse cursor comes in the frame, moves the whole frame into a recycle bin icon, a modern desktop is seen,	mouse click, trash crumbling

	the cursor clicks a browser icon, 'Oops! Error 404. Internet not invented yet!' Glitch effect. Changes to Internet has been invented!	
CS	zoom into the screen, a world with a network of computers connected is visible	
MS	A man walks off from front of the frame, he is in formals, his waist is visible, camera follows	walking
	a pager is attached to his belt, which beeps	beeps
CS	he takes the pager, he presses view button, screen is twinkling yellow,	
	a hand grabs the pager and gives a cell phone to him	
	he turns it around to looks at it (as if he doesn't know what it is) it starts ringing, he sacred drops/throws it	phone ringtone
CS	falls on a table, glitching effect, turns into various phone models, yellow blasts and lights emitted randomly	various glitching sounds

	finally stops onto a touch screen smartphone , shiny yellow lines enhance its thin shape	
EC	a new notification pops, zoom in, email opens, a finger taps on reply button	
WS	a mail icon bounces off the screen, flies into the night modern cityscape, many other social media icons are flying, camera follows another icon of a video	swooping, flying fast sounds
MS	drops on a even modern smart phone, a boy laying in bed, opens the video, its some funny cat video	laughing sound
	laughs, scrolls, scrolls	
EC	the phones screen notifies battery low, and	beeps, battery low
	black out (the end)	

WS = Wide shot, MS = Medium shot, CS = Close-up, EC = Extreme close up.

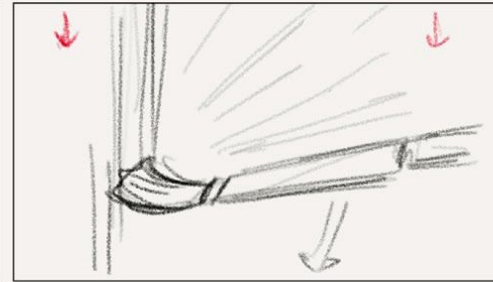
Plotting the
Storyboard



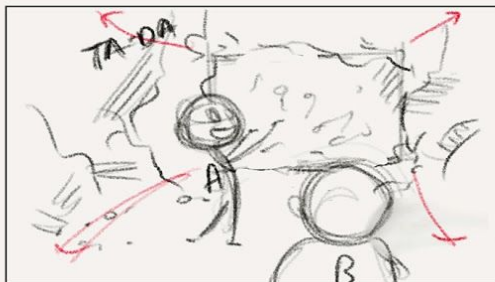
two men talking gibberish
(yellow shots fired but missing)



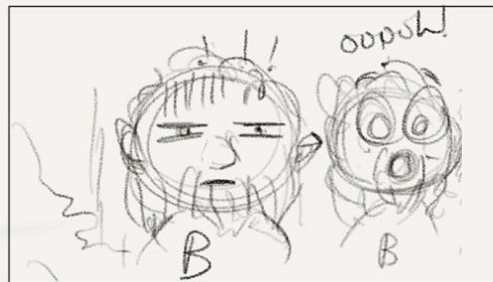
man A saddens, then gets an idea



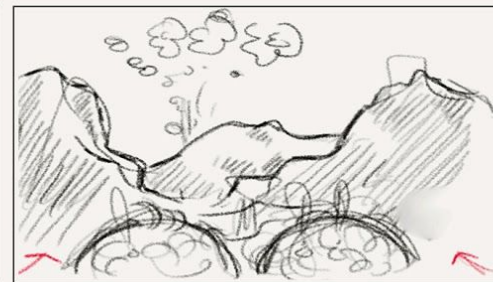
cave painting closeup shots,
(yellow lining the painting)



man A reveals a cave painting

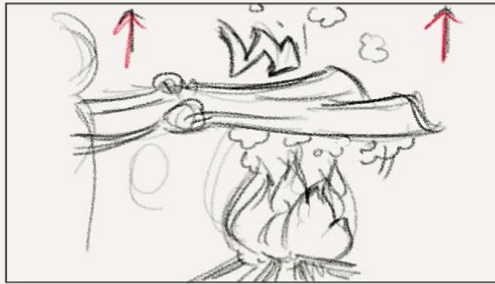


man B reads, changes to
enlightened expression

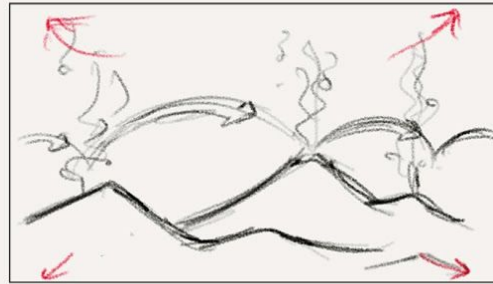


startled, both go out, smoke
rising far away





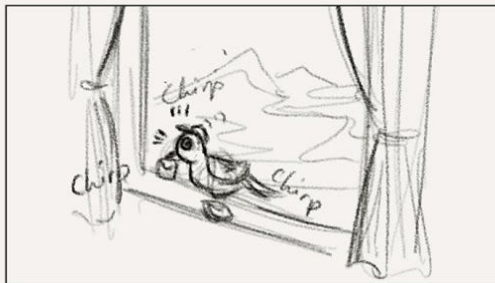
man B waving cloth and smoke rising in shape of hand emojis



yellow balls bounce across mountains and smoke rises



a pigeon flies in, camera follows



the pigeon lands onto a window, chirping audible, a man takes letter from his mouth



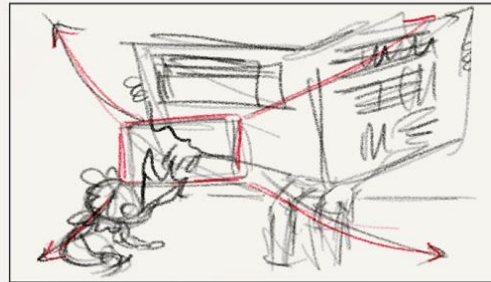
small letter unfolds into big one man reads and exclaims pfft! and uses to cover a parcel



the man riding a horse with mail bags, camera follows the pony express



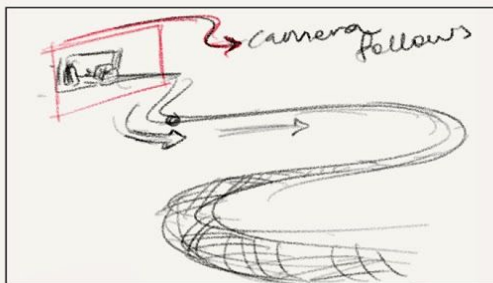
parcel explodes



screen tears up, zoom out,
toddler biting on a newspaper
piece



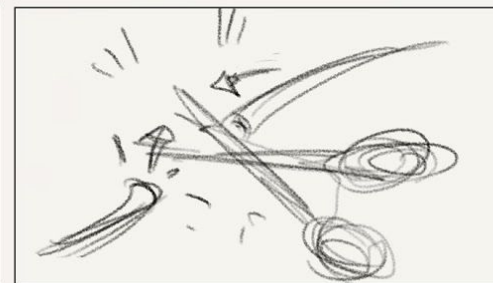
baby happily blabbers over a
telephone, zoom onto a wire



a yellow signal runs through
wire, camera follows



zoom out, entangled wires,
yellow signals running through



a scissor cuts one wire, a yellow
signal is thrown into air

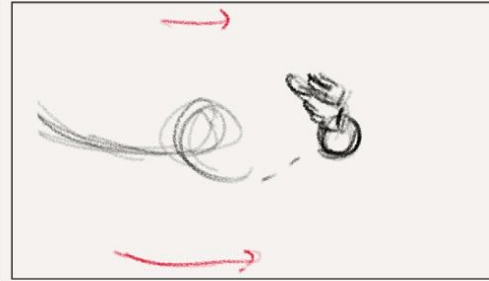
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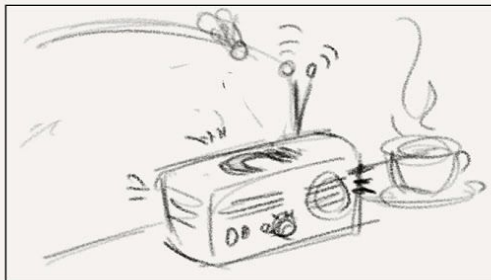
yellow signal thrown into air,
flutter around, zoom out



city scape visible with yellow
signals bouncing, wireless era



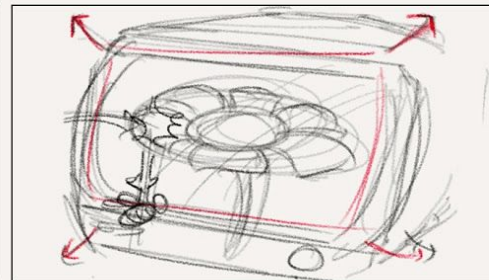
camera follows a buzzing signal



the signal bumps into a radio, a
hand tries changing chanel



buzzing increases, a bee flies in,
camera follows bee



bee bumps into a flower, zoom
out, its in TV screen

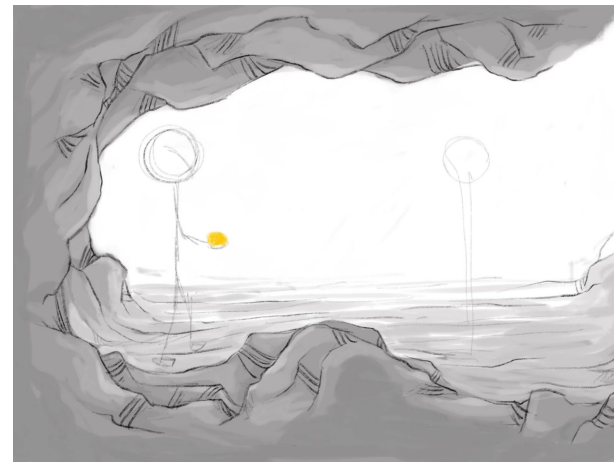
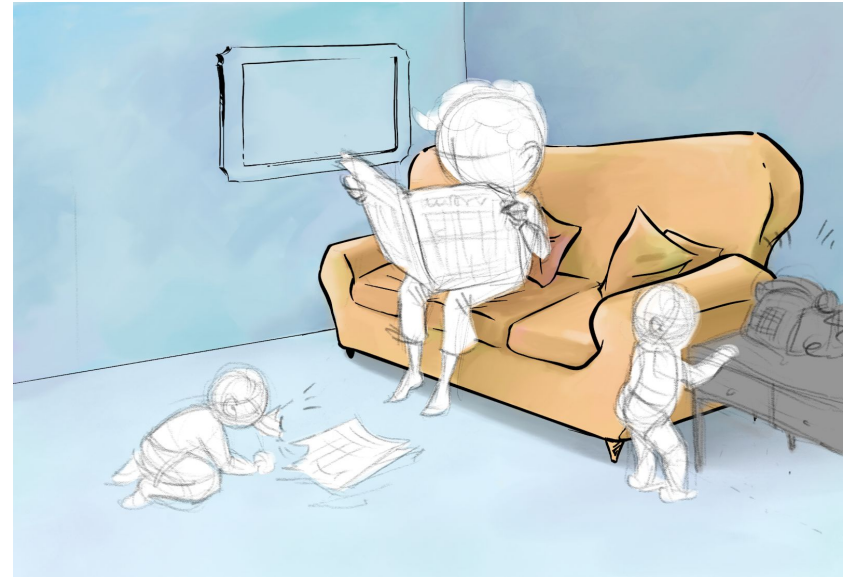
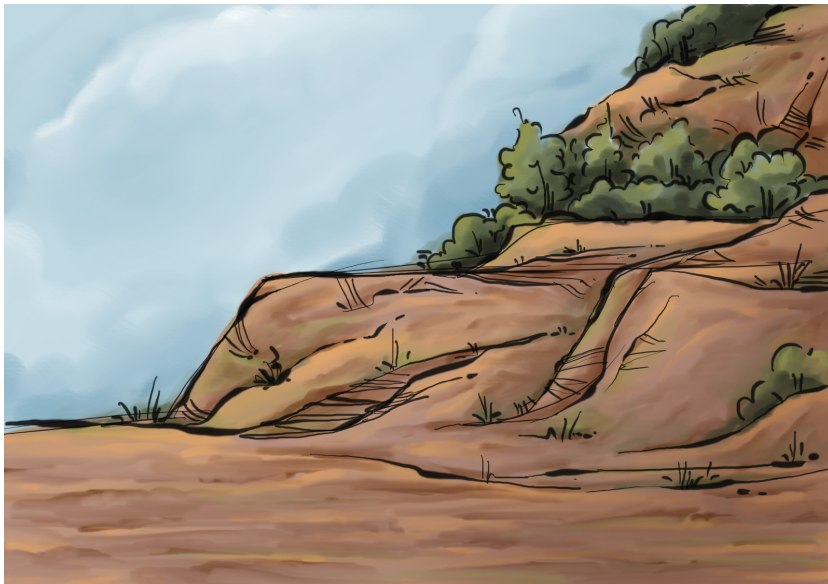
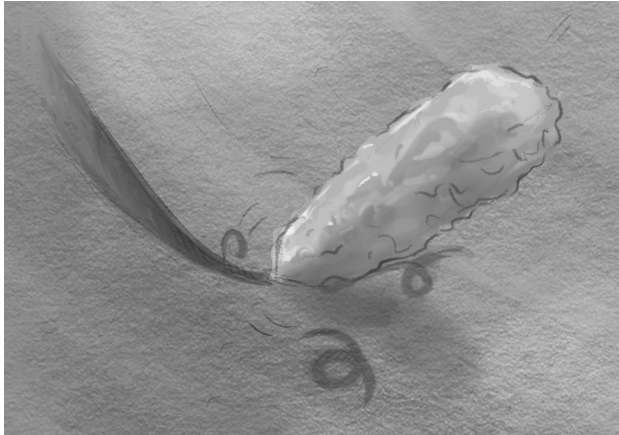


These comprise
about 1/3rd of the
main sequence.

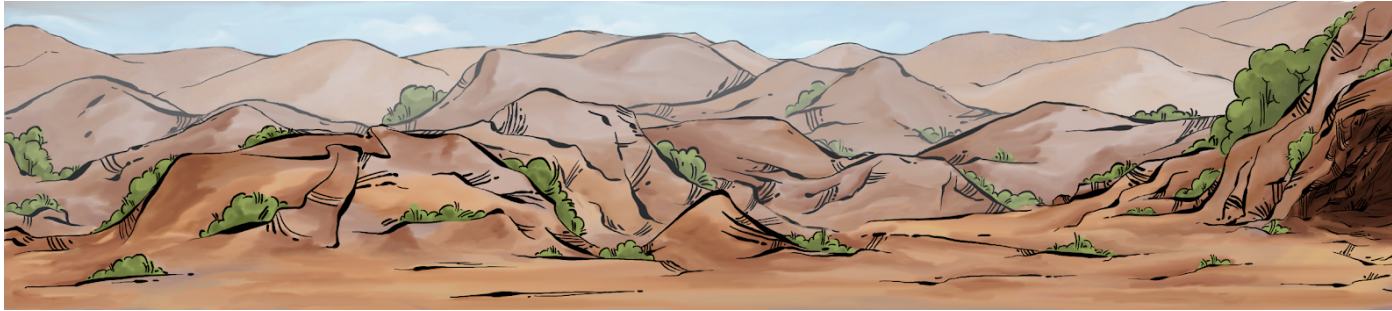
Style explorations

Ideation

Background explorations



Background explorations



Initially, with the burst of enthusiasm we have for new projects, I overestimated the time and dived in head first into the process. I explored styles which have a finished look and coloured every drawing I created very realistically.

This background was for smoke signals, where the cavemen come out of the cave as they are startled by some outside. And then they walk out, when this background pans to the right. Finally with a zoom out, various smoke signals are seen rising over the mountain tops.



Character explorations



Character explorations



Story concepts

Pulling everything together

Pulling everything together

The story was made up of bits and pieces and it did not have a flow to it. So, I thought of a few ideas to bring everything together as a whole. But the challenge was to affect the main script as little as possible.

Concept 1: A dream sequence

Many centuries later, in a history class, a student dozes off during the lecture. He half mindedly hears the teacher asking the students to turn over to page 394. During his sleep, the teacher teaches a lesson on their history and evolution. The words enter the students ears and he visualizes an imaginary dream of it. He, the teacher and all other students are robots, i.e. future of community devices. After the dream, he is awakened to his teacher scolding him.

Inspired by (the '3x9=?' exam question) scene from the Bollywood movie Taare Zameen Par by Aamir khan.



Concept 2: The flashback

In the future, when robots have become an integral part of every house, a young robot asks, “Why are you so different from us grandma?”

In return the viewers here a staggering voice say, “Uh, come, I...will explain to you our family tree today...”

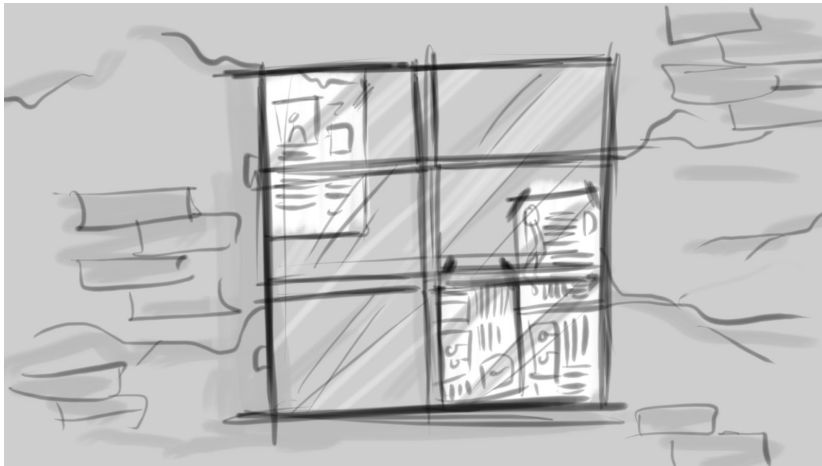
And the main script, the evolution of the communication plays. After which the grandma is revealed to be an old big monitor sitting on a wheelchair, with entangled wires and input devices attached to it.

The younger robot smiles hearing her story, both leave out a sigh and share a happy moment watching the sunset.



Concept 3: Slums of Mumbai

In this story, staged in the present time, each scene is shown as a spin-off with respect to the slum setting. All the devices and stages of evolution of communication would be shown differently and not its original meaning. Eg. Newspapers? Pfft! they are just created to cover the windows.

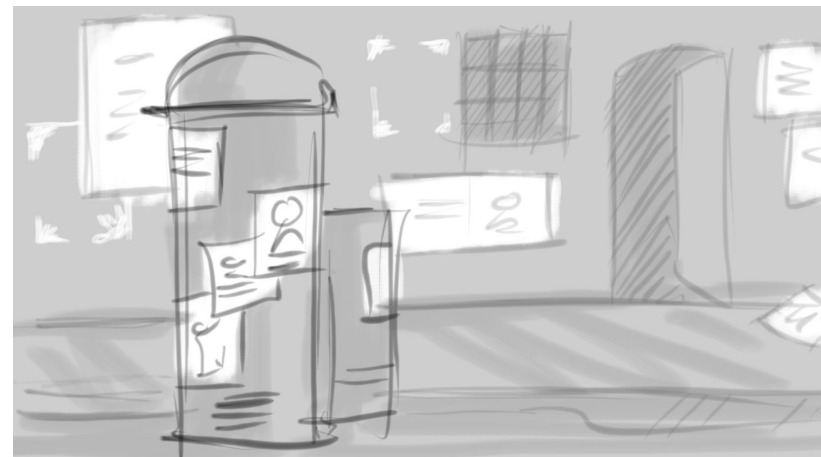


This was my personal favourite, but due to time constraints, I had dropped this at the very beginning itself.



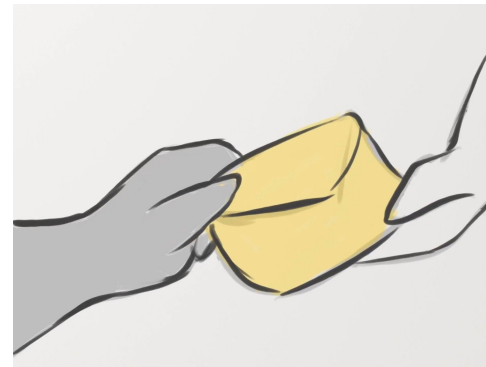
Smoke signals? Ugh! Vo baajuvali ne aaj phir kachra-gadi miss kar di lag raha hai.

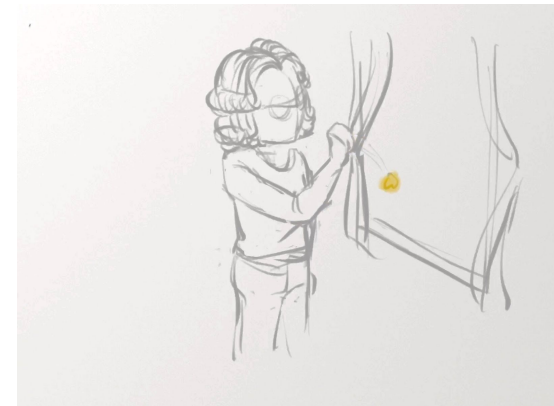
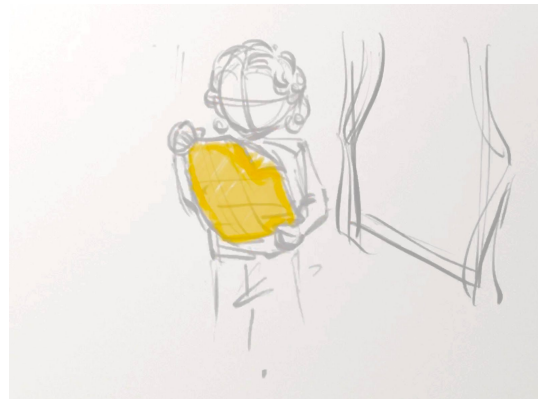
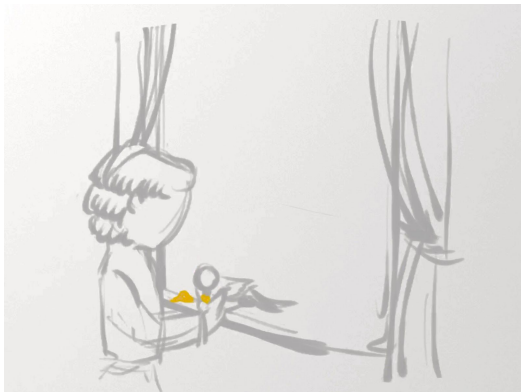
(Smoke signals? The neighbour aunty must have again missed the garbage truck, must be burning it all up.)



Quick experimentations
Rough animation tests

I wasn't fluent with any professional 2D animation software. But was quite versed with 'Animation desk', a 2D animation app for Ipad. Short animations like straight-forward movements or 8 seconds long shots were sufficiently doable. But when it came to animating a 2-minute long video, I came across certain limitations. Ignoring these red flags I went ahead and began creating the animatic. I kept exploring other softwares with which my rough animatic was done 1/3rd into the story.





Final style

The output

I unknowingly kept changing the style, so after a good amount of explorations, I jotted down certain points that I decided to follow throughout the video to keep the style consistent.

Overall

- Inked visual look
- Monotonous colours
- Camera transitions
- (lot of pan and zoom)

Characters

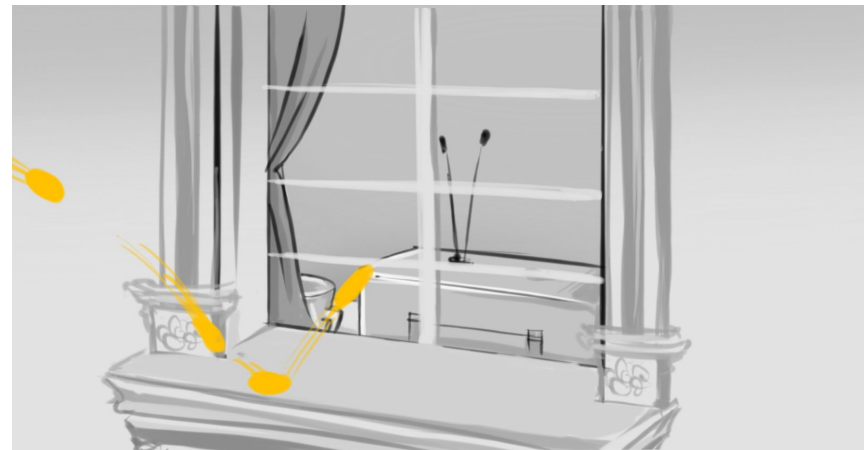
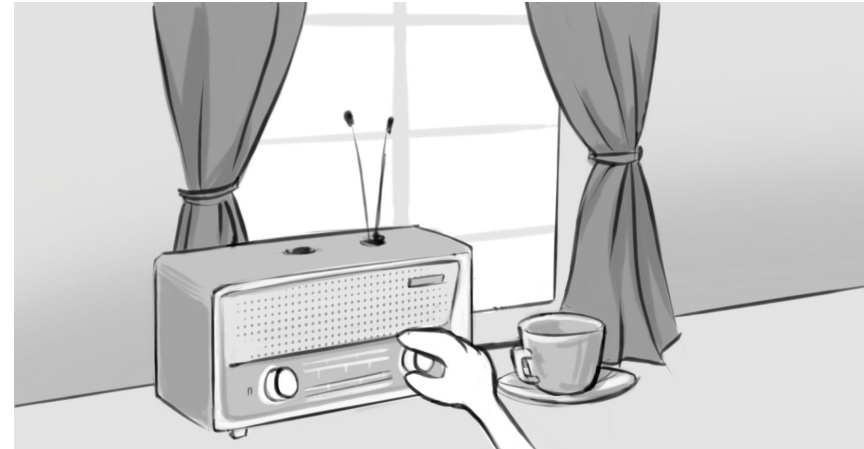
- Big eyes - expressive facial expressions
- Small body - easy to animate

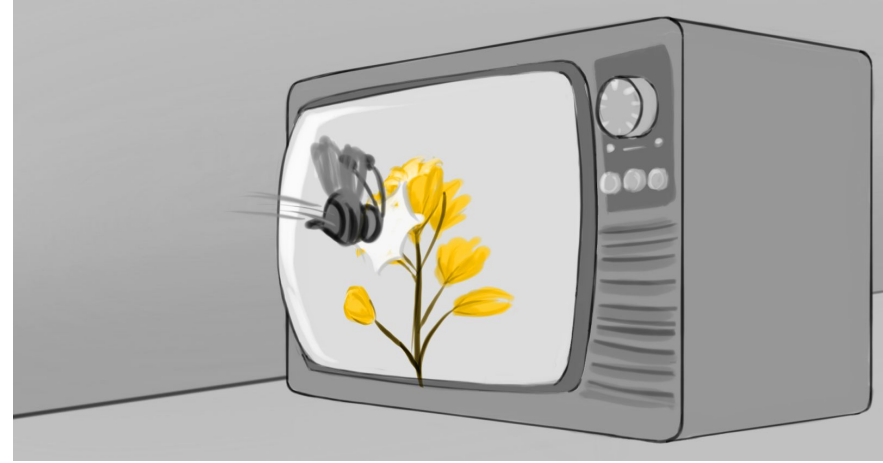
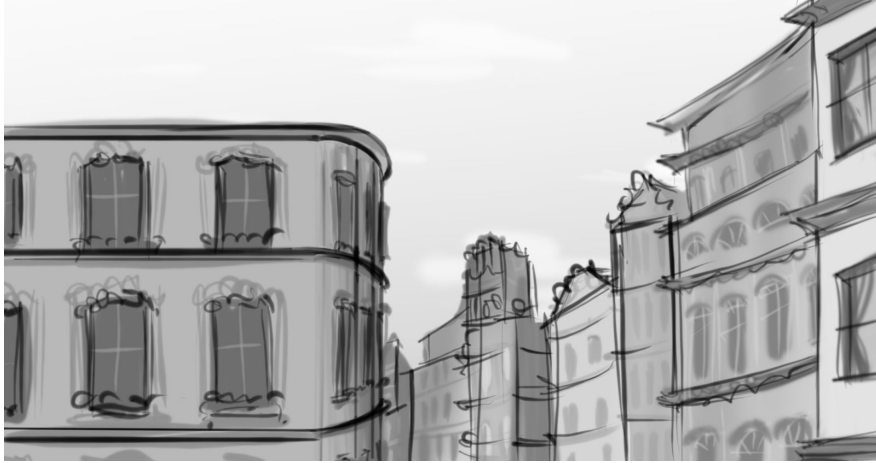
Information

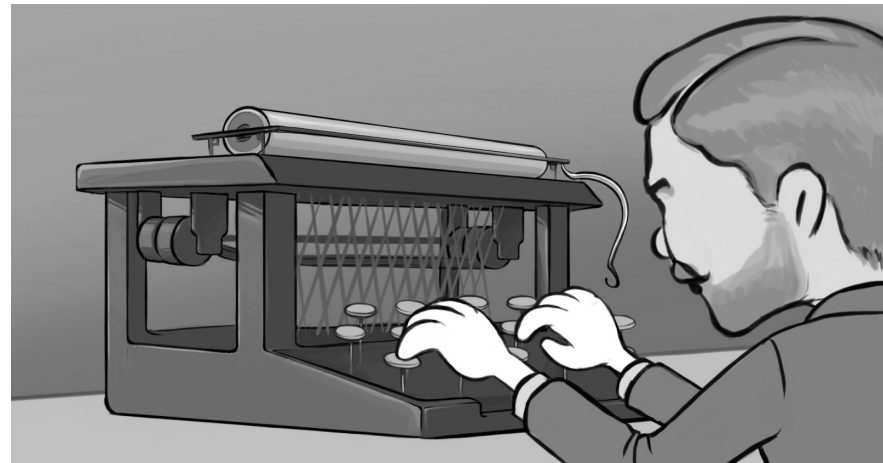
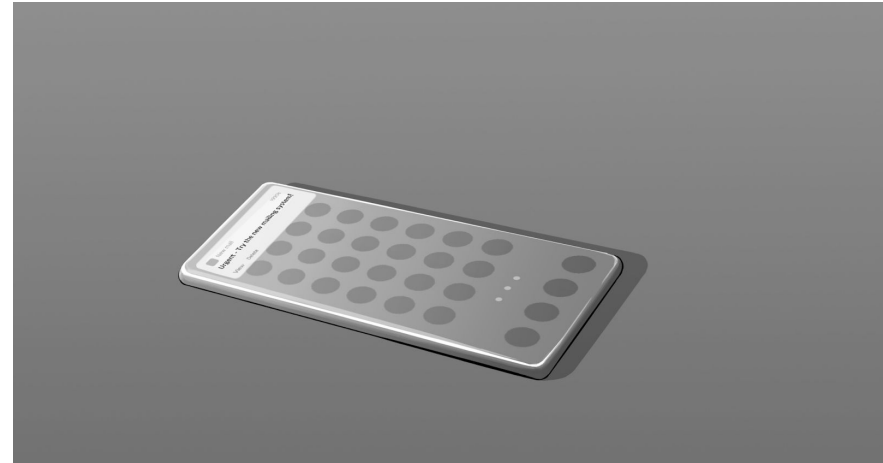
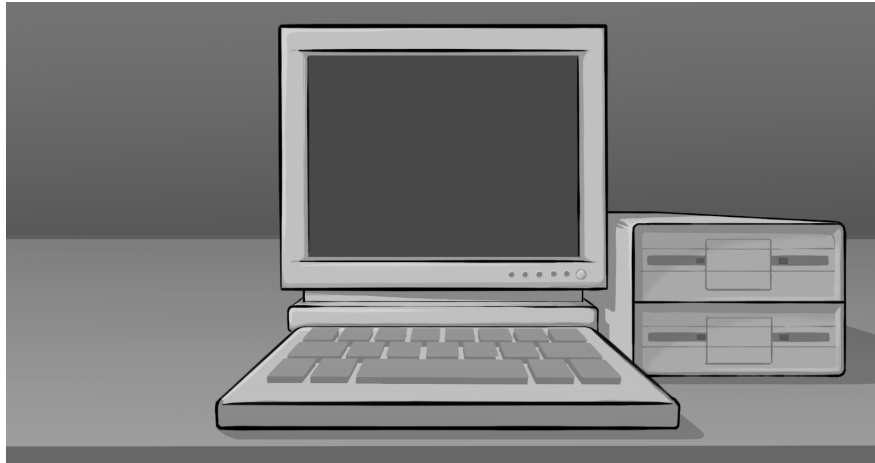
- Highlighted by yellow-orange
- Shape changing blob

With a black and white visual style, the yellow blob depicting the transfer of information is visible as the most significant element.

Due to the lack of time and other reasons, the video is still work in progress. The animation is more of a high-fidelity prototype. i.e. an animatic, with only the keyframes and not the full motions. Here are some of the frames from the final output.

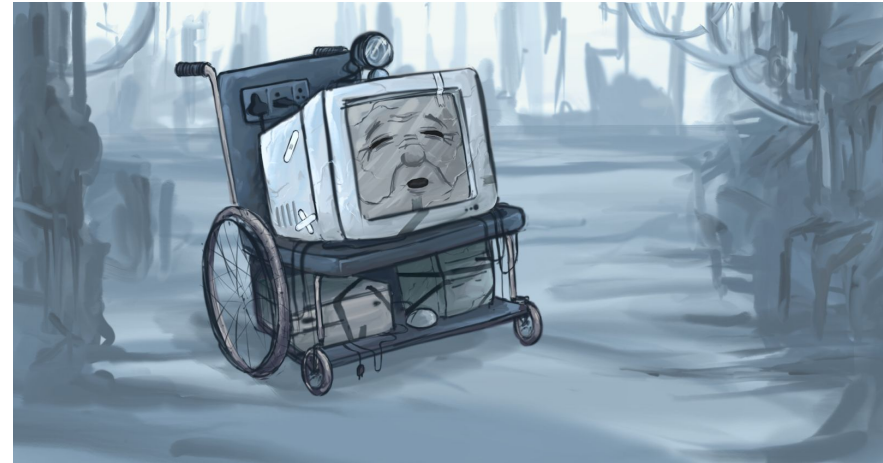






Finally, for the outer storyline, I chose the 2nd concept - the flashback - discussed above (page 32).

The evolution was a set of glimpses from the past, hence shown in black and white, while these happen in the present time. Therefore, the style is kept different, with colours, details and realistic proportions.



Conclusion

In this process, I got a chance to learn many aspects of animation and explore many mediums. Illustrating the evolution of communication, an otherwise informative concept, in a fun and less theoretical way, with use of only visuals was a great experience. I wanted to create a video that need not be heavy with a lesson or moral, but is fun to rewatch even if watched a few times.

Since, I dived headfirst into making the finished images rather than properly planning out the animation beforehand, there was a difference between what I imagined and what came out as the final output. I feel it would have been better with my peers and other creative minds around, critiquing and providing necessary feedback on the process I followed.

I was warned that animation is a very intense task that needs immense amounts of drawings, for which I was always ready, but only later I realised it also needs an immense amount of good planning and time management.

I hope I get more opportunities to explore animation making use of the immense amount of learnings I discovered during this project.

Acknowledgements

Firstly, I would sincerely like to thank my guide, Prof. Phani Tetali for his guidance and never-ending patience during this course. His constant support and insights have been invaluable for this project.

Secondly, I would like to thank Prof. Anirudha Joshi for coordinating this course. The timely check on our progress and the feedback sessions organised during the pandemic were a source of motivation. I am also grateful to the other professors and my fellow classmates for their valuable suggestions

Then, I would also thank my little sibling who helped me sort my confusions over the history and the timeline. Special thanks to my parents, for encouraging me and being a great support amid the outbreak.

Akanksha M.

References

- RESEARCH ARTICLE - MAN AS A SOCIAL ANIMAL. March, 2012.
<https://www.thehindu.com/features/education/research/man-as-a-social-animal/article2988145.ece#:~:text=Aristotle%20the%20legendary%20Greek%20philosopher,Man%20cannot%20live%20alone.>
- EVOLUTION OF COMMUNICATION - STONE AGE TO MODERN AGE.
Jul 12, 2016. <https://youtu.be/oxTUC5I22LU>
- FROM 1G TO 5G - EVOLUTION OF COMMUNICATION, Mar 24, 2018
<https://youtu.be/NUovkXWe15s>
- FROM SMOKE SIGNALS TO SMARTPHONES.
<https://mashable.com/2014/12/05/evolution-of-communication-brandspeak>
- A BREIF HISTORY OF COMMUNICATION. <https://youtu.be/WfCUxeQ2VSE>
- HISTORY OF CELLPHONES AND HOW DRASTICALLY THEY'VE CHANGED. Jul 31, 2017. <https://youtu.be/nrdNdprcYls>
- EVOLUTION OF MOBILE PHONES 1946 - 2020. Oct 18, 2019.
<https://youtu.be/g9uSIy-j294>
- A BRIEF HISTORY OF COMMUNICATION. <https://youtu.be/oay2Qy3wBe8>
- HISTORY OF THE MOBILE PHONE | FROM GSM TO AUGMENTED REALITY. Mar 17, 2016. https://youtu.be/qqK-izwjf_Y
- THE EVOLUTION OF COMMUNICATION THROUGH THE CENTURIES
<https://www.mobilecon2012.com/the-evolution-of-communication-through-the-centuries/>
- COMMUNICATION DEVICES: HISTORY, TIMELINE & IMPACT, 2018
<https://study.com/academy/lesson/communication-devices-history-timeline-impact.html>
- EVOLUTION OF COMMUNICATION TECHNOLOGY. May 20, 2014.
<https://www.slideshare.net/sushruth645/evolution-of-communication-technology>
- HISTORY OF ELECTRICAL COMMUNICATION DEVICES.
<https://www.timetoast.com/timelines/history-of-communication-devices>
- <https://en.wikipedia.org/wiki/Communication#Family>
- HOW COMMUNICATION HAS EVOLVED WITH THE NEW TECHNOLOGIES. May 24, 2017.
<https://medium.com/bsg-sms/how-communication-has-evolved-with-the-new-technologies-52ee1ca114f>
- A BRIEF HISTORY OF COMMUNICATION.
<https://youtu.be/rDkxsNmKDGk>
- EVOLUTION OF COMMUNICATION. <https://youtu.be/UJjvsGBjy2U>
- THE HISTORY OF COMMUNICATION TECHNOLOGY.
<https://www.conferencecallsunlimited.com/history-of-communication-technology/>
- Carol Lindsey. Fashion History B.C. to Present Times. B.C: Egyptians, Cretes, Greeks, Romans. Modified 2017. (<https://slideplayer.com/slide/11683091/>)
- Sounds from Zapsplat.com