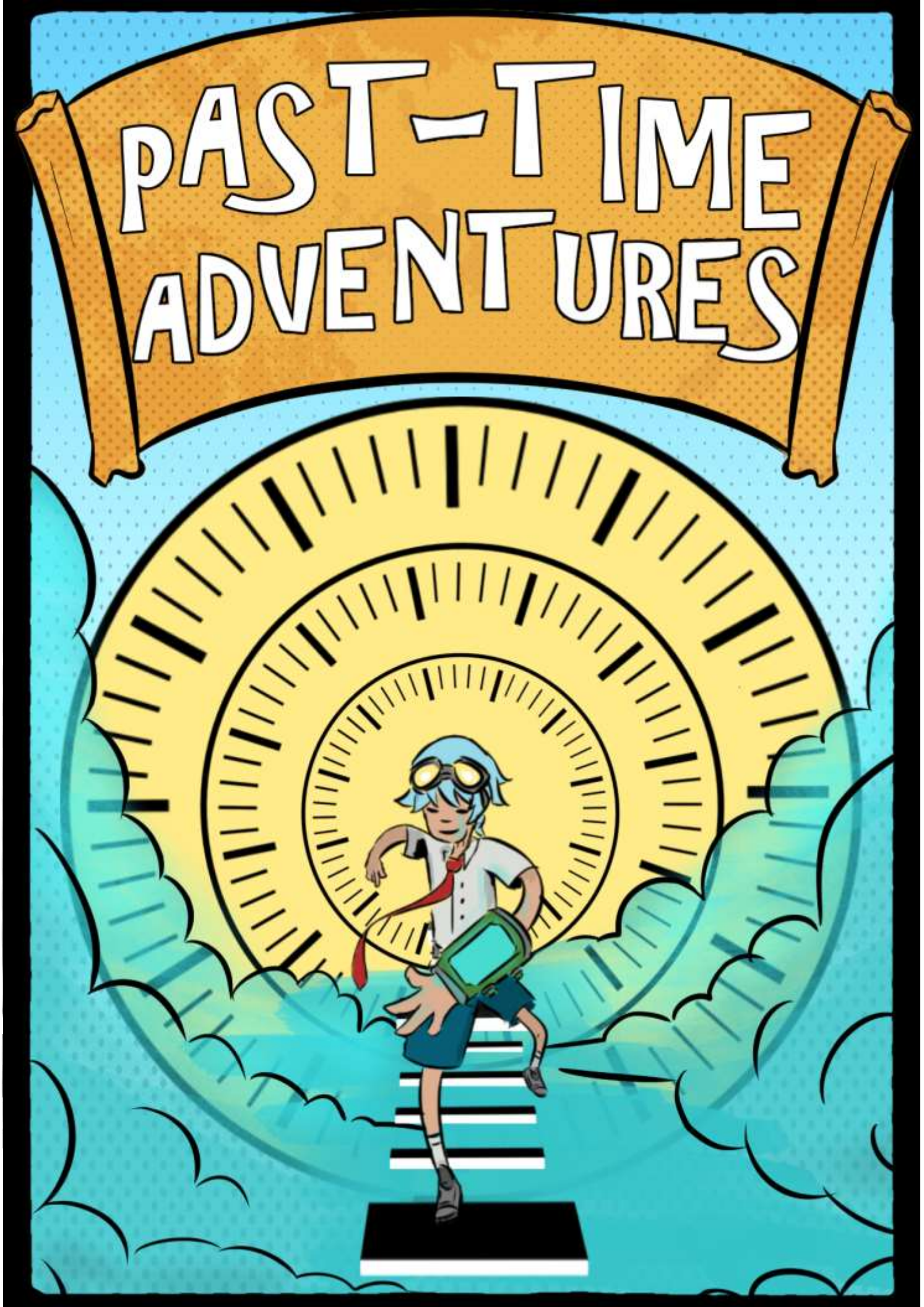
PAST-TIME
ADVENTURES

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2 Version History

DATE	VERSION	AUTHOR	CHANGES
06/02/2018	0.1	Zainab	Template, Overview
07/02/2018	0.2	Advait	Story, Benchmarking
08/02/2018	0.3	Raul	Levels, AI
09/02/2018	0.5	Karthik	Levels, Technical
10/02/2018	0.4	Pulkit	Art, Management
10/02/2018	0.6	Vrishabh	Sound, Interface
11/02/2018	0.7	Zainab	Gameplay, Flow charts

3 Team Members

MEMBER	POSITION
Advait Dhumne	Assistant Programmer
Bharat Dhanani	Lead Artist
Karthik Kanagarajan	Level Designer
Pulkit Singh	Project Manager, Artist
Raul Ravi	Lead Programmer
Vrishabh Keniel	UI & Sound Design
Zainab Khan	Lead Game Designer

4 Game Overview

4.1 Game Vision

Making the players learn about important inventions by experiencing events that lead to them

4.2 Genre

Adventure, Puzzle

Past Time Adventures is an adventure game with small scale puzzles in each setting with a story revolving around it.

4.3 Target Audience

The target audience chosen for this game are **6-10**-year old's. Since the game is all about inventions, the children will love the topic. This is because they love learning about new things, and when given the opportunity to participate in an event like that, there's nothing more that can make them happy.

4.4 Platform

The chosen platform is for publishing the game is **Android,** but is not limited to little screens. The game will also be available on **PC.**

4.5 Feature Set

- Mini-Games available after completion, in a separate section.
- Four inventions and Inventors to meet.
- Simple Control Scheme

4.6 Look & Feel

Past-time Adventures is a top-down game with a perspective camera. It deals with time travelling. We are aiming for dynamic lighting setup to go with different times and locations but mostly planning to use warm colors for historical elements and cold colors for futuristic elements. To enhance this warm feeling, we're planning to use soft lighting similar to *Asterix and Obelixs and the Mansion of the Gods*.

4.7 Project Scope

4.7.1 Number of Environments

The number of environments planned for Past Time Adventure are five at the moment, out of which, four require proper environment design, with prop placement.

4.7.2 Number of Levels

The levels planned depend upon the number of settings the game has.

4.7.3 Number of NPC's

Planned NPC's so far, are two types per environment. Hence, it may reach 8-10 at the max.

5 Learning Outcome

The center point of our game has always been about making the kid have an exciting adventure by going back in time and understanding human inventions. The game teaches the player about the important people involved in the creation of some amazing inventions. It also helps the player understand the order in which the events occurred and exact dates.

The system designed also takes care of other learning aspects, such as colors. Since some parts of the game will require the kid to remember the color pattern, and judge what colors were used to compose a certain gradient.

They'll also come across few new scientific terminologies, which are introduced at a very slow pace, but are very relatable.

6 Gameplay & Mechanics

6.1 Gameplay

In Past Time Adventures, the player assumes the role of a kid, Harry, that has been burdened up with the responsibility of going back in time and setting things back to how they were originally.

Harry does this by using the watch that is provided to them by a supporting AI, that is, Professor Nyugen.

The game starts in a museum, where after learning about the basic movement and interaction, Harry will need to interact with exhibits. Certain visual feedbacks are given to the kid to understand what has exactly gone wrong with the invention.

The game has all exhibits open to Harry, with few conditions. If Harry chooses to correct something that has happened later in the timeline without having corrected the previous invention issues, he will run into a halt at some point. This is because, the future era will require a previously built invention's usage.

Harry meets inventors, understands their problem, convinces them to let him help them. He also explores the environment and collects materials required for solving the problem by moving around and involving in conversations.

After having fixed all the problems of an exhibit, Harry comes back to the museum, and continues to fix other inventions by following the same steps.
In the end, Harry rescues Austin and gets back at the museum.

6.1.1 Interdependencies

The interdependencies amongst each level is as follows:

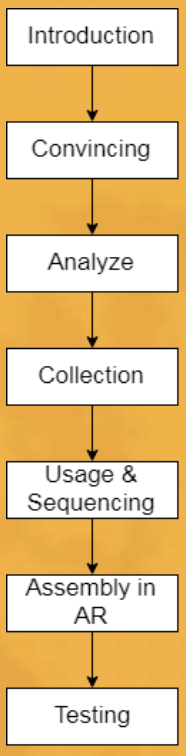
- The wheel would require tools from the current timeline to help in carving easily.

- The electricity level would require wheels functioning for a mission that requires the player to travel around the map.
- The vaccination level requires electricity for powering up few equipment's.
- The aero plane level would require most of the levels to be completed, since the wright brothers could be found sick, or require electricity to power up the engine, and require wheels for landing.

6.2 Progression

The game does not show the overall progress of the player directly, but it is showcased through the number of exhibits remaining. Internally, the player will keep getting information though feedbacks upon completion of a quest and via dialogs.

6.3 Game System



Our gameplay system goes in the following order:

- The player gets to know about the problem by not being involved directly initially.
- Through few dialogs, player convinces the inventors to let him work with them.
- They then analyze what's causing the problem.
- Collection of necessary parts/materials begins.
- They then explore the possibilities of using those parts in whatever order they want. Only one way is correct.
- The player then assembles the invention in AR.

- Lastly, they test it out.

6.4 Mission Structure (Types of Missions)

The player will come across several types of missions

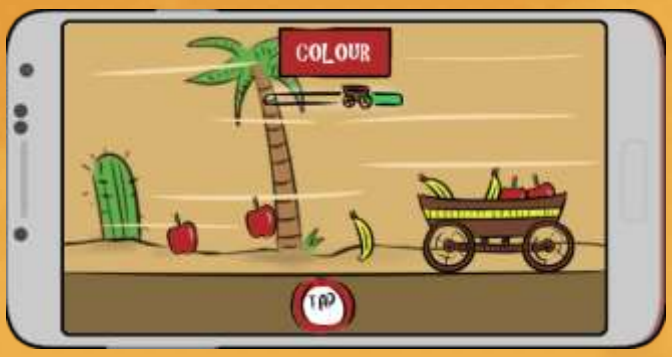
- Convincing a NPC – This is a dialog mission, where player makes choices.
  - To give out clues.
  - To give a sub-quest.
  - To allow to do the main quest.
- Sneak mechanic
  - Player moves when the meter over the enemy head is empty to sneak
- AR
  - Collection
    - Player collects parts out of couple of random objects.
  - Assembly
    - After collection of parts, player must assemble the invention.
- Using right tool
  - This is where sequencing comes into play.
- Doing the mini-game.
- Delivering items.
- Completing certain missions under a time limit.

6.5 Mini-Games

Each level consists of mini-games. These mini-games appear only after an invention is assembled.

- **Wheel**
  - Harry tests out the efficiency of the wheel by helping the gatherer collect fruits quickly. The system displays a color on the screen. Harry has to collect fruits of that color. If they fail to do so, and collect the wrong color, the speed of the cart slows down. This basically represents collecting a heavy fruit, which isn't what was intended by the gatherer. The color keeps changing at intervals, but the switching is only limited to two colors.
  - A bar on top represents the distance covered. When the bar gets full, the mini-game comes to an end.

TEAM ZUUP
GAME FOR KIDS
GDF3 & GAF3
DSK SUPINFOGAME



- Electricity
  - In this case, Harry directs the charges to either positive node, or negative node. The charges are colored based. The positive charge will have a blue color and the negative will have orange.
  - When a charge is fired, player taps at the right terminal, by matching the color. If the wrong color charge is directed at a terminal, the game resets.
  - Upon reaching the right number of charges for both terminals, the mini-game comes to an end.

- Vaccination
  - Harry destroys the measles virus by using the vaccination he is holding by shooting down the blobs of the same color, that's in the syringe.
  - He also has another syringe that shoots out nutrients, which is to be given out to important cells.
  - If he attacks the cell with the wrong syringe, the patient Harry is helping, falls sicker.
- Aero Plane
  - Part 1
    - To test out the functioning of the plane, Harry will be required to test out the efficiency of each part of the plane before it takes off.
    - For this, Harry has a panel of colorful buttons, which require to pressed in a certain sequence. Each part has a gradient (set of colors), which needs to be identified.

- If pressed in the right order, another part appears, and this happens a total of three times. If pressed wrongly, the progress is reset.

- Part 2
  - Once the parts are tested out, the plane takes off. Harry now has tap whenever the wind appears, to keep the plane flying in the air.
  - If he fails to do so continuously, the plane just crashes.

6.6 MECHANICS

6.6.1 Movement

6.6.1.1 Walking

The movement in the game is done by tapping and holding four directional buttons provided on the screen. The longer they hold the button for, the further they'll move.

6.6.1.2 Hoverboard

The player uses the same **four** buttons to execute this movement, by ***double tapping*** and activating this mode. To charge the hoverboard, the player is required to collect **potatoes.**
This mechanic is advised to be used when the player is not surrounded by any NPC's, otherwise it'll end up alerting others around.

6.6.1.3 Interaction

The player interacts with objects by tapping on them. These interactions could be about talking with people, picking up items, fixing an object, etc.

6.6.2 Inventory

Throughout the game, player will keep acquiring items. These items are stored in an inventory, which is displayed on the right side of the screen all the time.

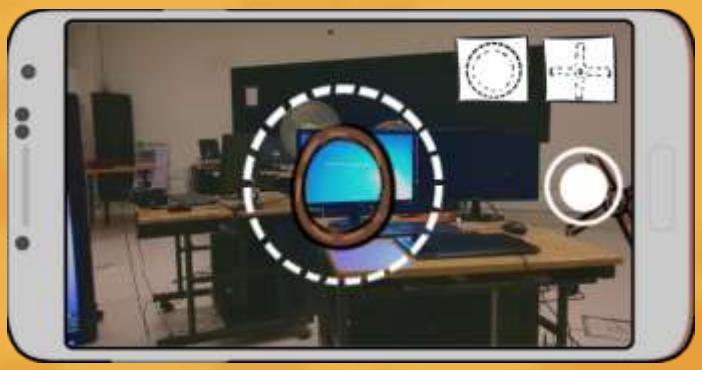
6.6.3 Sequencing

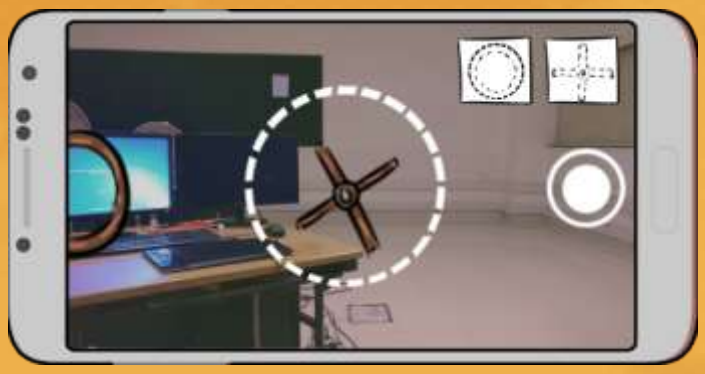
This is a very simple mechanic, where the player must do things in the right order. This includes conversations, fixing things, arrangement of items, assembly of items, etc.

If the player makes a mistake and does things in the wrong order, the situation reverses back to its initial state, and the player has to replay that scenario.

6.6.4 AR

In this section of the game, the camera switches to AR mode with various objects around the player. The player must look around and detect the right objects in the right order to progress.





6.6.5 Actions

The types of actions the player will carry out in the game are as follows

- Talking
- Choices
- Identifying items via silhouettes provided
- Storing items in inventory
- Using items from inventory
- Fixing broken parts, Correcting errors – by replacing with right items
- Tapping at the right time
- Scanning shapes – AR

6.6.6 Combat

There isn't any combat in the game, but parts of quest may require the player to fight certain AI. These require simple tapping on the correct type of enemy to remove them from the screen.

The system that is followed here is identification on the basis of color.

An example would be fighting a type of virus that causes measles.

6.6.7 Economy

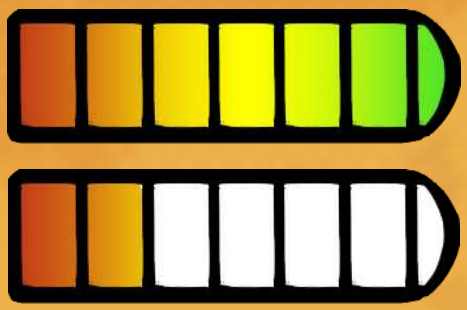
There aren't any stats in the game, since the planned design is targeted towards younger audience.

The only stat/bar we have in the game is used for the movement mechanic, that is, the hoverboard. The player is required to collect potatoes throughout the game, which charges the hoverboard to go ahead.

Potatoes are available throughout all the levels easily.

There are three states to this bar, Red, Yellow and Green, which represent how fast the player can travel.

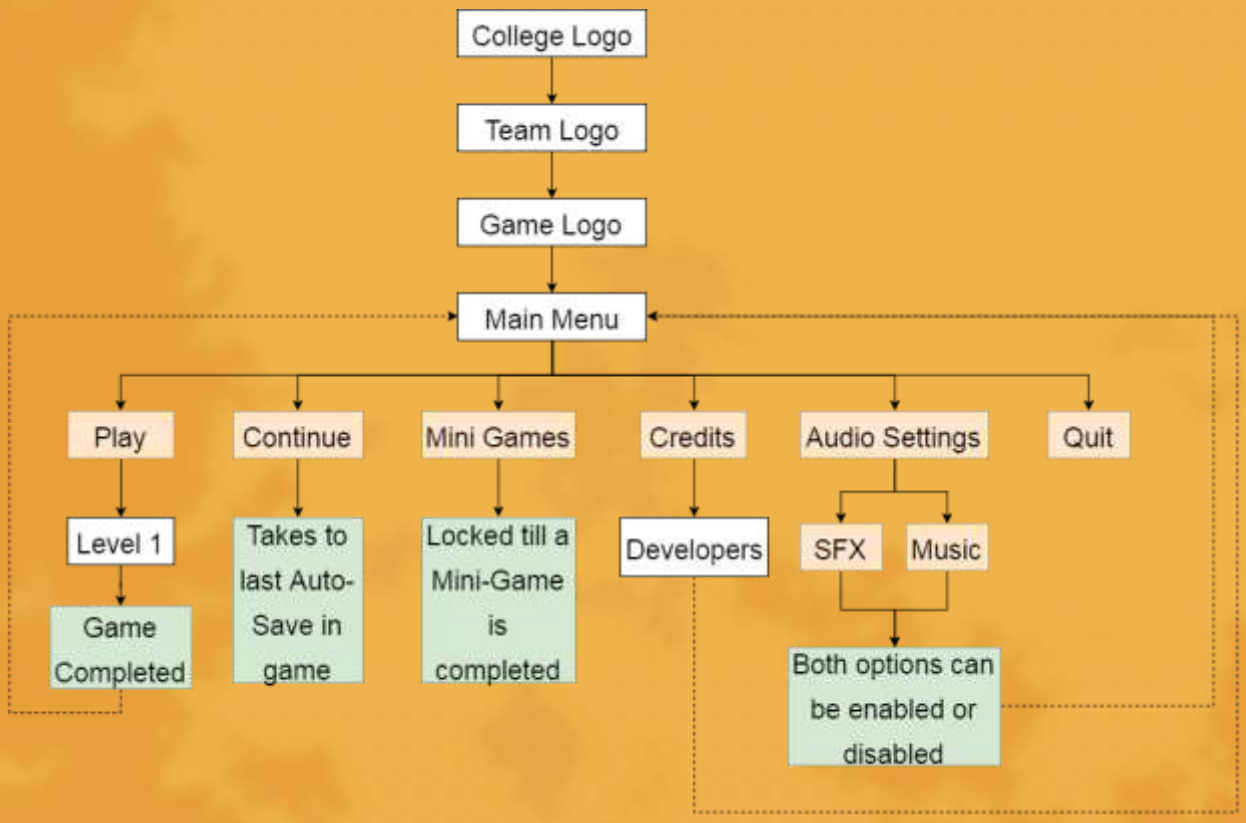
- Red – Slow Speed
- Yellow – Medium Speed
- Green – Fast Speed



The states of the hoverboard

6.7 Screen Flow

6.7.1 Screen Flow Chart



6.8 Saving

The game has an autosave function that saves the game state every time a quest or sub-quest is completed. Players can access this saved state by pressing the continue button on the main menu.

7 Story, Setting & Character

7.1 Backstory

The year is 20xx, Harry and Austin are two science prodigy kids of St. Charles middle school and they absolutely despise each other. Both are always in conflict with each other to prove their superiority and to make the other look lesser. Professor Nyugen, their teacher is in constant distress and annoyed by their behaviors and he wishes that both kids focused on their studies and not so much on their rivalry. All he desires is for them to learn.

During their mid semester break, the school arranged a study trip to the Museum of Mankind, a place where world's most important inventions and discoveries are showcased. Both students were very engaged with the museum exhibits. Until at a point where they met and immediately started quarrelling. Austin formulated a theory which stated that humanity has not progressed as well as it should've and that things could've been better if in the timeline most inventions were made by more competent people like himself and not idiots like the Wright brothers, Nikola Tesla and Thomas Edison. Harry immediately laughed and mocked his idea. He supported the fact that great inventors and discoverers made everything that is today possible and that humanity is extremely lucky. This turned into an extremely loud argument to the point where authorities had to pull them apart after which Prof. Nyugen gave them a mini detention of 2 hours in the storage section of the museum where they were bored out of their mind.

Prof. Nyugen ensured that the detention ended before the museum revealed their most recent feature, the TIME MODULAR UNIT. This device which was the first portable time travelling apparatus. This was planned to be utilized in the museum as a means for the visitors to experience the stories of inventions and discoveries first hand by going back in time. The unveiling received critical acclaim and immediately caused a rush of excitement and amusement in the crowd. Everybody wanted to experience the stories of great scientific advances. But Austin has different plans.

Austin stayed behind in the museum after the school trip was. He wanted to disrupt all the scientific advancements so more component people can make it a reality. Harry, after the argument he had during the day suspected that Austin will use this device. So, to stop Austin, Harry also hid from the class and stayed in the museum after the trip. Prof. Nyugen after realizing that both these students didn't make it back, went back to the museum to ensure that both went home safely and hoped they didn't screw up.

Austin snuck in the exhibit where the time prototype was kept. Harry followed him. Austin immediately started tinkering with the device. As he was about to press the button to go back in time, Harry and Prof. Nyugen barged in the room coincidently. Both Harry and Austin did their best to reason with Austin. Austin got extremely aggressive and said that he would prove that his theory was full proof. He presses the button and gets zuuped to the past. Harry immediately starts to panic while Prof. Nyugen just expresses disappointed. Harry wants to stop Austin but doesn't know how exactly he would achieve that. Prof. Nyugen reveals that he is one on the main contributors in the making of the Time Modulator Unit and he has a spare one which he gives it to Harry. He then requests Harry to go track and fix everything that Austin is trying to break, while he manages and ensures everything is back according to the original timeline sequence. Harry accepts as he really does not want the timeline to screw up and now it's up to him to save the past.

7.2 Plot

Harry must now fix all that's gone wrong.

- He must go back to Ancient Egypt and fix the shape of the wheel
- Help Thomas Edison in making the light bulb work properly
- Cure the kids from measles with the help of Dr. Enders and Dr. Peebles.
- Fix the Wright Brother's plane and get it in air

7.3 Cut Scenes

The cut scenes in the game appear as comic panels.

- Introduction
    - The first cut scene of the game will explain the backstory of the main character and other people directly involved in the scene.
    - This cutscene will explain the process of screw up in the museum, about how things have gone wrong, and how Harry is helped by his Professor to make the situation right.
- Setting 1
    - Harry is shown travelling back in time to the era of wheel. He notices all the wheels in odd shape and people struggling to carry out their daily activities.
    - He'll meet a gatherer who is struggling to carry his goods.
    - After having done a sequence wrong while shaping the wheel, the comic will show the future world gradually going in down, with vehicles having odd wheel shapes.
    - After finishing the level, the comic will show the future world vehicles in the right order, and Harry travelling back to the museum.
- Setting 2
    - Harry notices Thomas Edison struggling to make the light bulb work from a window.
    - After customization, he speaks with Edison, to hire him as an assistant.
    - Harry is seen analyzing the items written on the blackboard that are to be purchased. He remembers the correct list.
    - Harry and Edison together see the bulb work and travels back to the museum.
- Setting 3
    - Harry after customization delivers vaccination to children's hospital
        - Notices it doesn't work, kids still have measles
        - Harry is seen thinking about the situation
    - After letting the scientists know about situation, he is allowed to observe the strain
        - Strain's color has changed
    - If sequence goes wrong, a future comic is shown where people still have measles, huge ones
    - Harry is seen happy as vaccines work. And he travels back to the museum.
- Setting 4
    - Notices the plane failing miserably, cannot take off
        - Watches wright brothers incredibly frustrated
        - One wright brother smashes blueprint on the other

- After customization as a mechanic, focuses on engine
- If engine not fixed properly – plane smokes – future comic panel showing people having malfunctioning planes or no planes – lots of time is consumed

- The end
  - Harry saves Austin and returns to museum
  - Professor is mad at Austin, and they board the bus

7.4 Game World

Past-time Adventures takes place in the near- future where time travelling is possible and the player can visit certain timelines.
The universe is far advanced into the future and the people who live there use technology to travel around, including timelines. This takes place through special devices, which are now exhibits in the museums, due to their special powers. If fallen into wrong hands, timelines could be changed.
The future timeline is mostly revolving around blues, to represent the digital world that the world has now become.

The universe will also showcase the other worlds, which will consist of the era of steam engine, ancient paintings, or when the wheel was invented.

7.5 Characters

7.5.1 Harry

Harry is a genius child who excels at understanding physics. He is always indulged into figuring out technologies and inventions that could potentially push humanity forward. He also loves debating ideas and having intellectual conversations with fellow classmates and teachers. He is an experimenter and loves to be presented by problems. He thinks quick and comes up with solutions on the go. Harry however when unable to find solution is very prone to panicking.

7.5.2 Austin

Austin by personality is a kid who is very skeptical and cynical in nature. He is a critical analyst who can find faults and holes to almost perfect structures. He is regarded a genius by everyone around him as he is extremely skilled in understanding and breaking down complex structures that even adults have problem figuring. He also very mischievous in nature and commits sabotages to hinder others. He is always on the pursuit to ensure that he is intellectually superior to everyone.

7.5.3 Prof. Nyugen

Professor Nyugen is the head of science of St. Charles school and has had a lengthy career in creating inventions and is a respected member of the leagues of scientists. He loves teaching young people science and takes immense pleasure in helping his students figure out the world. He is extremely calm and contemplative and it even reflects in his speech as he thinks and talks very carefully. He is also the co-inventor of the first handheld prototype for time travelling device called Time Modulator Unit that is currently scheduled to be used in the museum.

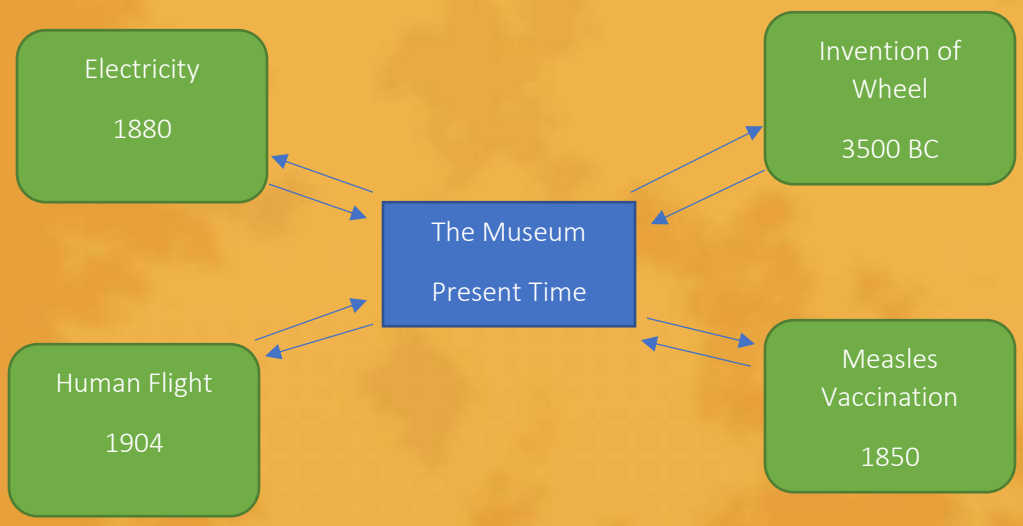
8 Level Design

8.1 Intentions

Every level is designed for young children to have fun while learning about important inventions throughout history. Levels will be created with keeping sure that kids do not feel like the game is dumbed down and maintain a good sense of challenge and difficulty while also ensuring that any kid in our age group can complete it. The levels are divided by different setting that goes back and forth with the present and the past. Each of these levels are interconnected to make kids understand the idea of consequences by portraying changes in the future if things are changed in the past giving rise to interdependencies in the timeline. Each level will have one major factor that is incorrect and is causing problems in other timelines and the levels direct the player to the problem. Levels will be small with simple structured navigation space and with the help of art to identify places and remember them, the game would be easy to navigate.

8.2 World Design

The world is set in a future museum where time travel is possible and technology has progressed much further. The main plot of the game involves in changing and sabotage of essential inventions and its up the protagonist (Harry) to go back in time and fix it. This story and game structure revolves around this museum acting as a hub to every other level in the game and the player will come back to the museum after completing a level and to go to other timelines.



8.3 LEVELS

Although the game begins at the museum setting, it's not counted as a level as it only serves as a base to which the player returns after having finished a quest. The museum only prepares the player for the upcoming levels in the beginning.

8.3.1 Level 1 – Wheel

8.3.1.1 Synopsis

The first level will be set in the 3500BC with the environment of rocky plateaus or rocky canyons with small cave systems. As for the level we will be teaching the kids how the wheel has changed the world and how its impact has made the development in this world and how or why the early men could have got the idea to build a wheel? Maybe to build something more complex or just make their daily work easier.

8.3.1.2 Objective

The player goal is to guide or convince the transporter to build the wheel with a better and right design.

8.3.1.3 Physical Description

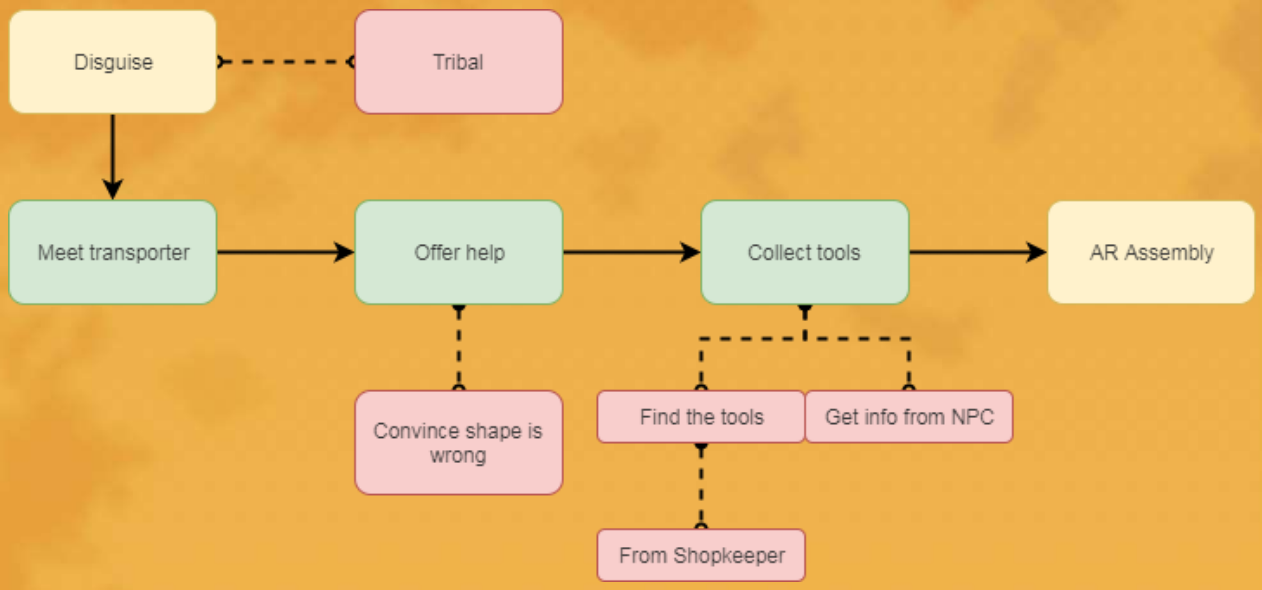
We are setting a standard for the all the levels terrain and how the levels will be setup. The plan is to make each level on its own single terrain which then will be divided into different sections of display with each section having its own uniqueness so that the player could easily understand the location very easily even without a map.

The uniqueness could vary from a color tone change within the single level to the layout of the land itself. However, the terrain's common theme will not be disturbed by any of this.

The layout for this level will be divided into three sections at the most to reduce the complexity for the player.

8.3.1.4 Level Flow

- The level starts with the player customization menu where the player must select a suitable costume for this era.
- The player will explore and meet the transporter, who is struggling with his work.
- You talk with him and convince him through sign language that you can help him.
- Collect tools to work with by collecting info about the type of tools needed first then collect the materials needed for wheel.
- In AR the player will scan the outlines of the wheels and assemble the wheel.



8.3.2 Level 2 – Electricity

8.3.2.1 Synopsis

This level takes Harry to the 1880's, New York to meet Thomas Edison in order to help him (re)invent the electric bulb. Harry must do various actions to prove to Edison that he is a worthy assistant, gather all required materials and then finally fix / (re)invent the electric bulb.

8.3.2.2 Objective

To replace the resistance material in the bulb and help Thomas Edison (re)invent it.

8.3.2.3 Physical Description

Since the time period this takes place is of significance, all the environment will loosely look like New York in the 1880's

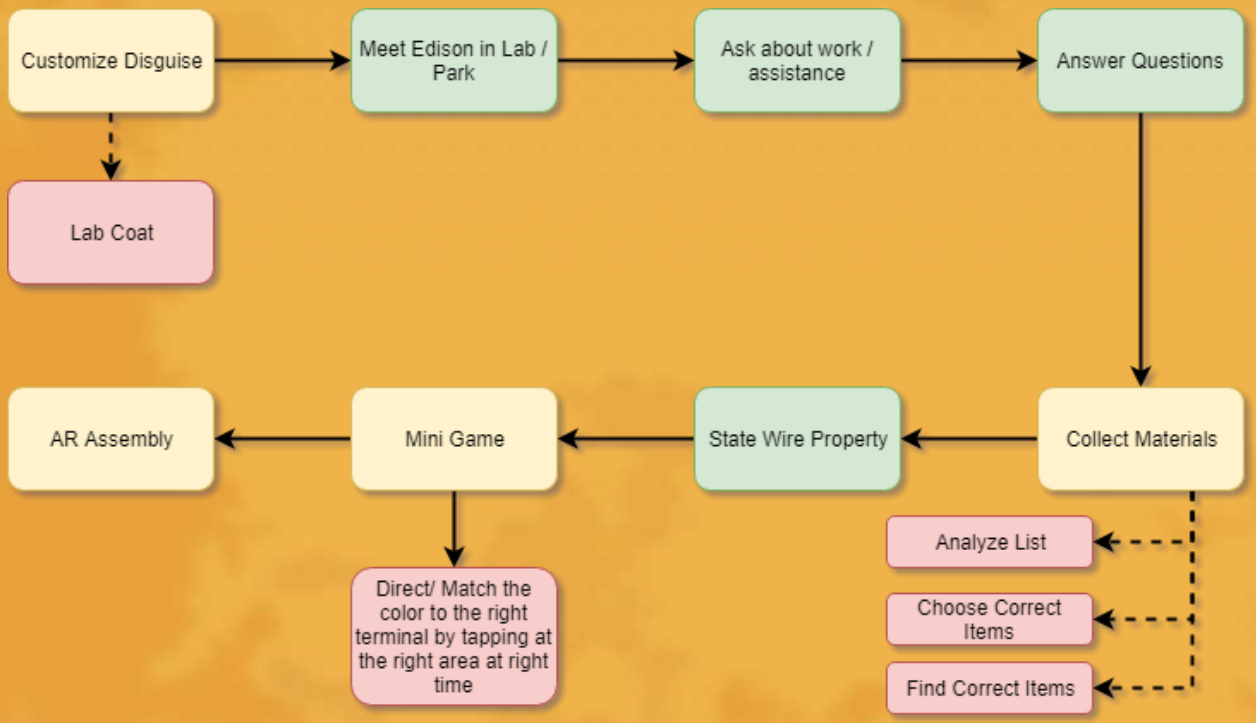
The important areas in this level are the lab itself, where Harry performs most of his work-based interactions. Therefore, it is of quite importance to get the lab setting complete with all the required gadgetry, equipment and even a blackboard.

The surrounding areas of the lab, where Harry has to obtain all required materials and objects from is also of importance since players move around a lot in this area. This area attempts to (to some extent) depict the 1880's New York City.

8.3.2.4 Level Flow

- Harry must correctly customize his disguise to that of a lab assistant (by putting on a lab coat) in order to convince Edison that he is a professional.
- Once done, Harry progresses to the park or the lab in order to meet Edison and have a conversation with him where Harry asks questions regarding his work and also answers a few of Edison's questions in order to prove his worth.
- If, answered well and correctly, Edison lets Harry become his assistant and gain access to his lab.

- Harry must now collect the required materials by analyzing the list present in the labs, choosing and finding the correct items on the list.
- Once done dialogue ensues where the players are taught (in simple terms) of the properties required for a material used in an electric bulb.
- Now, the players must play a mini game where they have to match moving positively and negatively charged particles with the correct terminals by simply tapping at the right area at the right time. This is done in order to get a working electric supply going in order to test the electric bulb.
- Harry can then actually build the bulb using the AR assembly feature in order to build the bulb.



8.3.3 Level 3 – Vaccination

8.3.3.1 Synopsis

Harry, in this level travels to 1950's Boston once he realizes everyone has been affected by the once eradicated measles virus, in order to help John F. Enders and Dr. C. Peebles with their groundbreaking research that helped bring this virus to an end.

Harry must first deliver the required strands, gather information and perform experiments in order to successfully clear this level and save the planet of its measles epidemic.

8.3.3.2 Objective

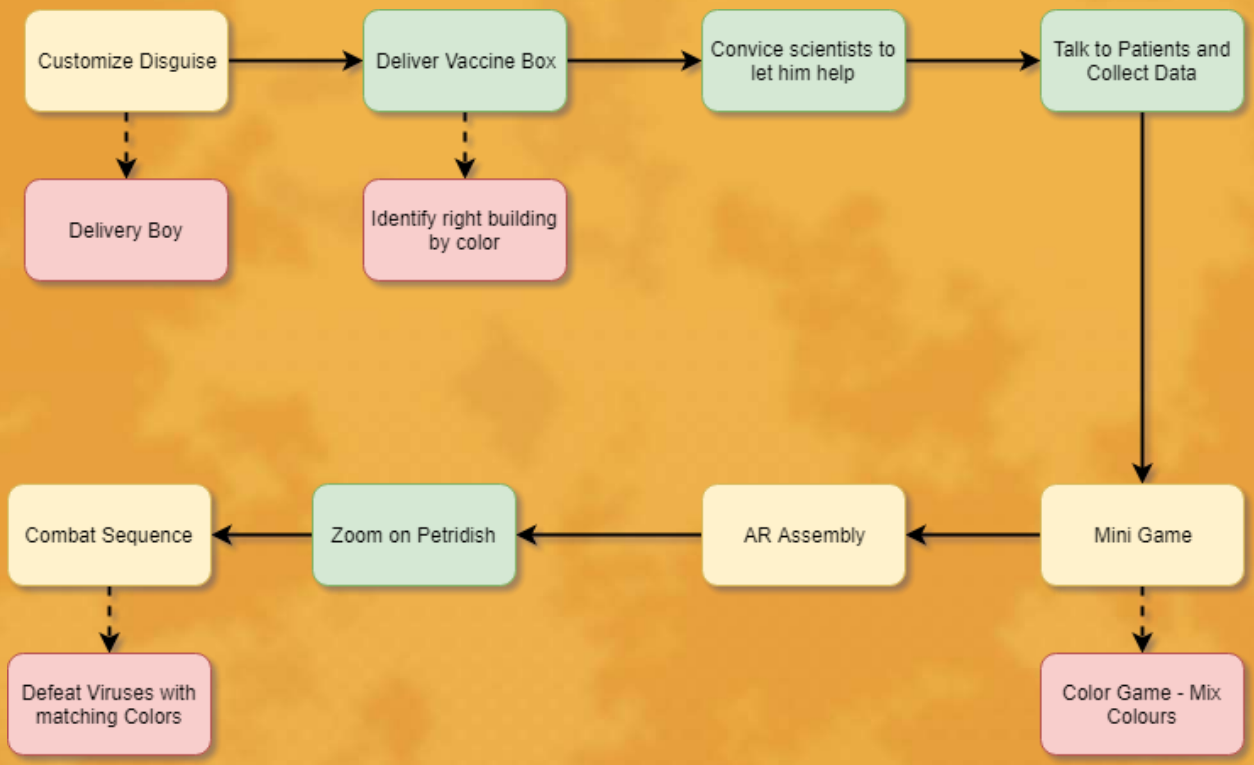
To help John F. Enders and Dr. Thomas C. Peebles in isolating the measles virus.

8.3.3.3 Physical Description

The major gameplay elements of this level take place in a hospital. The hospital has various areas of different purposes. The labs in the hospital is where all the testing and actual work on creating the vaccine is done. The wards are where the patients that are affected by various diseases (mostly measles in this case) are kept. Data collection about symptoms and blood samples are collected here.

8.3.3.4 Level Flow

- Harry must customize his disguise to that of a delivery boy in order to able to deliver the vaccine box containing various strands of the virus to the hospital.
- Next, Harry must identify the correct building by color and go inside to deliver the box.
- Once there, Harry must convince the scientists to let him help through dialog and actions to gain their trust.
- Harry is then able to talk to various patients at the hospital and collect data with regards to the symptoms that affect the patients.
- With the collected data and available strains, Harry must now attempt to create the vaccine. He does this through a mini game where he matches different colors in a test tube in order to finally get the right color.
- Once done, Harry uses the AR assembly feature to complete the vaccine and places the new strand on a petri dish to test its effects on the measles virus.
- This is depicted to the player through a combat sequence where players must defeat the viruses by matching colors and tapping on the virus with the right colors.



8.3.4 Level 4 - Aero plane

8.3.4.1 Synopsis

The final level will be focusing on the invention of aero plane by the Wright brothers and will be set during their period when they built the plane at 1903. The level will focus on teaching about how the Wright Brothers carried out a century long quest and made it possible for the future generation to expand even further on it and get outside into space.

8.3.4.2 Objective

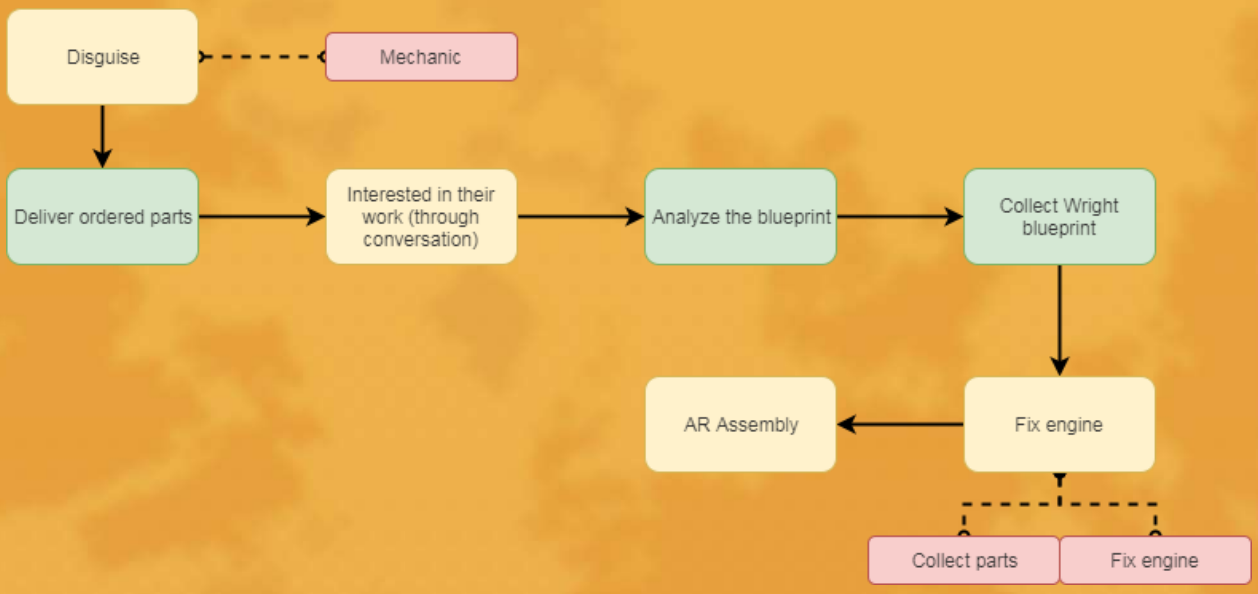
The objective of the player will be to help the Wright brothers complete their plane and make it fly.

8.3.4.3 Physical Description

The level will have two different setting with one interior and one exterior environment, with the interiors will be used for sections of labs and storages, while the exteriors will be used for sections of beach where the wright brothers tested and flew their first flight.

8.3.4.4 Level Flow

- Initially the player will have to deliver parts to the wright brothers dressed as a mechanic.
- The players will show his interests in the engine through conversation.
- The player will have to analyze the blueprint that the wright brothers show to them.
- Collect the correct blueprint from the future to show what they forgot.
- Fix the engine and the propellers with the wright brothers.
- Assemble the engine and propellers to the base plane with the brothers.



9 Learning & Difficulty Curve

The 6 to 10-year-old are still in the learning stage of how everything around them works, because of this we need to make sure they have the smoothest learning experience. Not only the overall experience, the learning experience in each level should be tweaked for the smoothest experience for the kids.

After discussing about how the gameplay should work for kids we thought of format for all the levels to keep it consistent for the kids to understand and learn through it:

- The player will go through a conversation with the inventors to figure out what's happening.
- After this the player will collect materials or anything that's required to build the invention.
- Finally, the assembly with a small AR gameplay in it.

As for the overall learning experience we will increase the difficulty as the player progresses through the level by either a simple action of increasing numbers or adding a small element to increase the complexity of the gameplay that the player will be facing. These numbers and elements will be tweaked based on our target audience and making sure providing a subtler experience for the player.

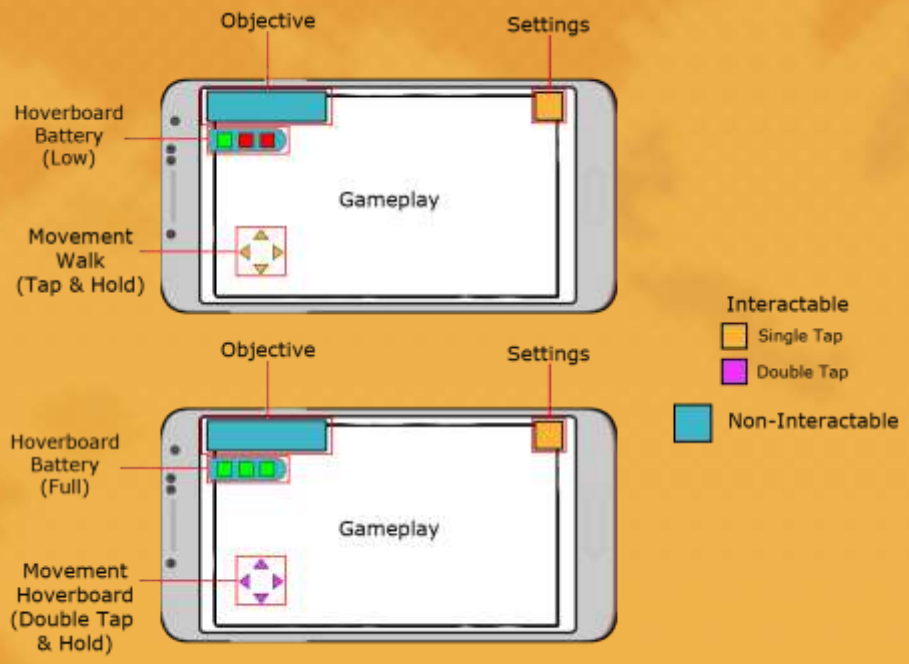
10 Interface

10.1 Visual System

The User Interface of the game will be shown through Comic art style. Unlike most of the traditional art form comics can show. It has its own medium-specific properties that allow us to express ideas that can't be expressed in any other way. Artful comics induce a kind of double vision in the kids: they fully experience the work by understanding the relationship between the parts and the whole; between linear sequence and the simultaneous perception of related fragments. This is the medium-specific quality that make comics something more than simple storyboards, it immerses the kids into a world which is a hybrid of traditional reading and art helping them visualize the universe in a straightforward way.

10.1.1 HUD

This UI is designed to provide relevant information to the player clearly and quickly. It will provide information to the player with regard to what he has to do at the moment. It just covers a small part of the scene so that the player can clearly see the gameplay screen and navigate.



10.1.2 Menus

All the elements in the Menu will be in form of a Comic strip. There will be 3 Layer of image on top of each other i.e. Background, Character and the Buttons respectively. The character will have a slight animation just like it's there in the cutscene.

10.1.2.1 New Game

On Clicking the button, the character will be transitioned to the starting Cutscene where the player will be introduced to the game.

10.1.2.2 Setting

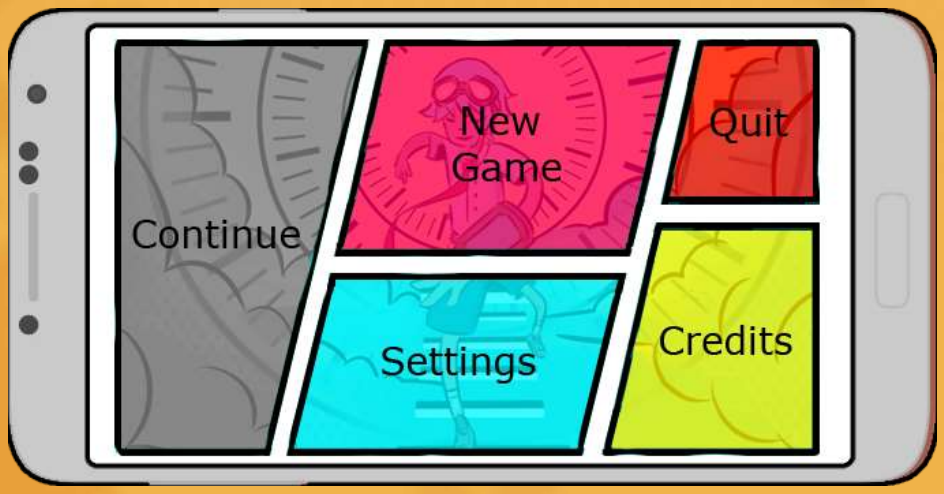
This button will transition to the Setting menu where the character can switch the sound on and off.

10.1.2.3 Credits

This button will transition to the Credits screen where Development team and the publishers name will be showed.

10.1.2.4 Continue

The player can come back and continue to play the game from where he left off. If the player is playing the game for the first-time colored area will be disabled. This will be showed by turning the area grey.



10.2 Control System

The entire game is based on tapping control, since we aim for a very simplistic control scheme.

The player taps a button to move around. To activate the hoverboard, player double taps the movement button. The same goes for any kind of interaction.

For AR, the player will be required to tap the objects seen in the camera.

10.3 Help system

Professor Nguyen acts as a help system by periodically providing players with tips or hints about clearing certain quests. Players can also interact with Non-Combat AI (optional) in order to gain hints or tips about the current quest or sub quest.

11 Sound Direction

11.1 Sound

'Mickey Mousing' will be used to create all the sound in the game. It has been used countless times in animation and film to evoke certain moods and ideas. For entire generations of kids, some of their most fond memories are of watching Saturday morning cartoons. The animated shows that became instant classics entertained children across the country and most had a special theme song that was so catchy, kids just couldn't forget it. While it was prevalent in the early days of sound cartoons due to how efficient it was for the animators to time the animation to, it soon became derided as cliché and corny, and its usage decreased considerably in the following years. By using this kind of sound, we want to introduce a choreographed dance between the Music and the SFX.

11.2 Music

There will be three music included in the game each one having their own qualities.

11.2.1 Main menu

The music in this will be progressive cartoon themed music as we want to induce a sense of responsibility in the kids. It will be a balance between heroic and comedic to make it more lighthearted for the players. Every time when they will enter the game they will be overpowered at the same time will be curious to find out what possible challenges the game can bring to them.

11.2.2 Cut scene

The music in the cut scene will induce a cinematic feeling while the player connects the bits and pieces of information shown through the cut scene.

11.2.3 In-Game

The music in the game will be plain and simple, so that the player can enjoy the game and isn't distracted by the music while playing. It will have a comedic vibe to it and will provide a comedic value to the game.

11.3 SFX

All the sound effects in the game will merge with both the Main menu and In-Game Music theme. When played it will synchronize with the music making it part of the music. The sound generated will bring out the slapstick cartoon effect in the game.

12 Artificial Intelligence

12.1 Friendly Characters

Friendly Characters are available to the player at quite a few places around the environment to guide and help the player across his journey into the past. They may offer information from everything ranging from giving them small tips, telling/showing them the right way to progress to providing the player with items that may be of use to them to make progress at an immediate effect or later in the game.

Tips exist solely for players who are lost/find it difficult to progress in the game. They are by no means compulsory within the scope of the game. A few examples of tips given by the friendly characters are given below:

- Hints about how one must behave or be dressed at a particular location/time period.
- Hints about how to gain access to a particular area.
- Hint about where to find certain items
- Tips about the behavioral patterns/characteristics of a few key AI characters

12.2 Opponent AI

Opponents generally act as obstacles to the player's progression. Players must beat them in combat (or otherwise) in order to progress. Combat is performed by simply tapping on the correct area on the screen at the right time. All combat phases have similar tap mechanics but vary in terms of duration and number of enemies for variation of pace and difficulty. Their movement patterns may also vary for different combat phases.

12.3 Non-Combat Characters

Non-Combat characters are those in game that do not engage in active combat with the player character nor do they provide the players with any overly useful information. Their purpose within the scope of the game is to provide the players with variety in terms of character behavior. They may provide the player with anything ranging from comedic relief to a feeling of "coolness". Most of the interaction with this AI takes place solely through dialogue or imagery.

12.4 Support AI

There is only one Supporting AI in the game, the Professor of the main character who gives small hints to the player from time to time. He also gives quests and keeps the player updated with what's going on in the current timeline.

13 Technical

13.1 Target Hardware

Our focus platform would be mobile with the use of augmented reality(AR). To further break it down, we are focusing more on android phones, because of the compatibility and the user base being wider than iOS.

13.2 Development Hardware & Software

We are using unity engine for the complete development of the game. Unity needs an extra plugin to work on AR mechanics, so we will be using **Vuforia** plugin to work on the AR gameplay mechanics of our game.

13.3 Development Procedures & Standards

The basic standards of various aspects of video game will be explained here. The display resolution will be 1920x1080 which will be scaled down based on the devices display. The assets will be set to standard size based on the universal standards of x32 pixels. The game mechanics will be tested with placeholders first to give us info on how it will work and then we will import the assets as it gets done one by one.

14 Game Art

14.1 Art Style

We are aiming for a *Cel-shaded Comic* Art Style which will be utilizing simple-blocky shapes, minimalistic features with flat yet bright, mid-saturated and soothing colors both for the characters and the environment. Avoiding the realistic and unnecessary textures, similar to many classic video games, animated series and movies. The game will have warm colors for historical elements and cold colors for futuristic elements to show the contrast and make certain objects stand out especially since kids are always attracted to the most prominent and contrasting colors.

The characters will have curved rectangular body structure with noodle-*ish* arms.

The decided color scheme for now is shown below. -

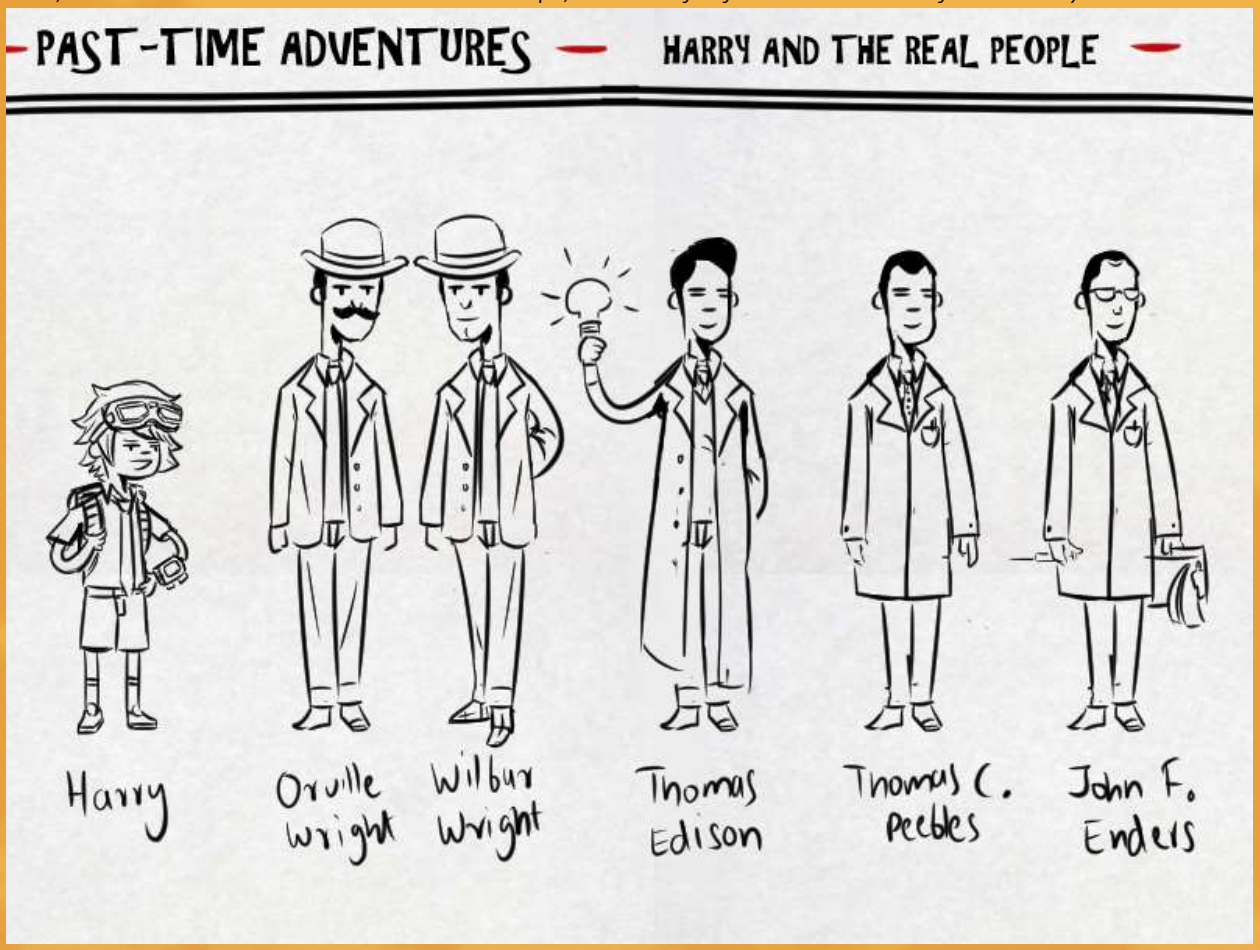
14.2 Characters

Harry, the playable character is a ten-year school kid with interest in science and loves experimenting and adventures. To show these basic features in the character, we have given Harry a messy hair cut with cool-looking goggles, the time modular unit on his left hand and a bag along with a school uniform. This is standard costume, whenever he travels to some different timeline, he'll get a costume from that particular time period.

Since our game revolves around famous inventions, there are going to be real people such as the Wright Brothers, Thomas Edison and John F. Enders and Thomas C. Peeble, we'll have to make them exactly how they look and wear to keep it as accurate but apart from these characters everyone else will be fictional.

We are planning to follow a single *Rig* pipeline for the *NPC*s to make it more efficient and cut down the production time though there will be different NPC models with slight changes in the body to make them look like the characters. This way we can create a NPC animation library and put any animation on any character. For the accessories and costumes, they'll be completely modular so we can cycle through them to have different variations. Whereas the main character will have a completely different mesh and rig.

Also, the characters will have two texture maps, *256x256 for face and 512x512 for the body*



14.3 Environment

The environment of the game has been divided into four parts based on the different time periods, Museum, Ancient Egypt, New York and Kitty Hawk. All the environment will be made modular so that they can be produced quickly and efficiently. We're are planning to use *trim sheets* for this.
Trim Sheets are texture maps which have different textures to be used on the models which are later converted into geometry by adding loops based on the textures and extruded out to be used as an asset. Using trim sheets helps with the ideation process and gives us an early idea about how the game will look since the textures are already part of our arsenal.

Museum environment is interiors and takes place in the current time, 20xx. It will have holographic exhibits along with non-holographic exhibits as well. Apart from the main quest items, the museum will have paintings and various cool stuff the kid can interact with, though the interaction will be very minimal.

Ancient Egypt environment will be exteriors with village houses and daily life objects along with the Djoser's Step Pyramid.

New York environment will be both exteriors and interiors. The interiors will just feature Edison's lab and Enders's lab which will share similar equipment and objects. The exteriors will mostly feature a certain part of the city consisting of few shops around the labs. This environment will be used for two settings.

Kitty Hawk environment will be mostly interiors with a simple exterior, i.e., a barn on the beach. The interior will consist of the Wright Brothers' workshop.

We're planning to have as less materials as possible to cut down the *draw call* and make the game more optimized. The trim sheet dimensions will be *512x512- 1024*x1024.

14.4 Cut Scenes

To make the game more visually appealing to the kid and explain the kids about the game, we have decided to use comic panel-styled cutscenes with very minimal looped animation to keep the attention of the kid. The cutscenes will be made very simple and easy to understand just through visuals. Along with the slight animations, there will be sound effects to emphasize the action shown.

14.5 Miscellaneous

We are planning to use lot of visual feedbacks in the game to make the game look more appealing, eg- flying dirt VFX when the character is moving. All the VFXs will be done in Unity Engine itself using simple 2D sprites. Every interaction will have a visual feedback as well.

Along with the VFX, we're planning to make *shaders* for the line art on the 3D Character and maybe less-costly post-processing shaders to make the game look cool.

15 Market Analysis – Benchmarking

15.1 Discover Babylon (2008)

Discover Babylon is an educational game created by the Federation of American Scientists, the University of California to demonstrate kids age 8-14 about three periods of Mesopotamian history:

The Uruk Period (3300 – 3000 BC) when writing was first developing; the Ur III period (2100 – 2000 BC), a time of great cities and central organization; and the Neo- Assaryian period (1000 – 600 BC). This game is aimed at teaching through experiential learning by indulging the players in the Mesopotamian society, their business practices and trade. The game's narrative is set in present time where the player takes the role of an investigator that is introduced to the disappearance of the resident archeologist Dexter and an ancient artifact that allows time travel allowing them to go in past and recover the artifact. The gameplay involves interacting with the museum curator and exploring parts of the museum, like the public spaces and backstage.

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15.2 Ansel and Clair: Paul Revere's Ride

Ansel and Clair: Paul Revere's Ride is a game made and published by Cognitive Kid aimed at teaching grade school kids an introduction to the time and history surrounding the American Civil Revolution and about Paul Revere. The players play as Ansel and Clair, two aliens who come to Earth to learn about history. The game is Puzzles and Mini game based (such as matching 13 colonies by their shapes into a U.S. map or dragging bags of tax money away from angry colonists and toward Kin George). This ensures that kids to learn about life in the colonies, from their geography to taxation without representation. Kids also write their observations in their in-game journals and even store photographs.