



Pokédex

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1. Introduction

1.1 Introduction

The goal of this project is to create an open source game inspired by the older generations of Pokemon games, taking place on RPI campus.

1.2 Road to BETA

- To Be able to explore multiple parts of campus.
- Create interesting puzzles for player to solve.
- Create meaningful story & plot to maintain interest.
- Creat tiles and patterns that match RPI.
- Finish game, battle, animation engines
- Finish Implementation of Terminal integration.
- Take photos and create color palette with RPI's textures ...



2. Story Line

The main storyline takes place in the same Pokémon world as the main series but in a different area. RPI is located somewhere far from the regions of Kanto (Blue/Red) and Sinnoh (Gold/Silver). These regions will be made first. Once we have the game engines polished, we can incorporate the game mechanics easily. Once we obtain beta status we can obtain feedback of the current game mechanics status and eliminate remaining bugs.

2.1 Main Game Spine - Archplot

By implementing great plot and character development, the main character will obtain an "unconscious goal of desire" this goal will show how the main character triumphs over all the challenges at RPI and become a mature adult who has grown in his abilities. It will attempt to portray the lives we lead as students and how the work we do will pay off in the long run. This is my goal to tell the story like this.

The game begins by welcoming the Class of 2018 and RPI theme song playing. Everyone who makes a new save file will begin as a freshmen regardless of actual class status. You will be able to pick your major, which will affect the exams you take (gym leaders that you fight throughout the game). The scene opens with Shirley telling you about the situation. The emergence of Pokémon in the real world has opened up entire realms of unanswered questions and things will never be the same again. Part of the Rensselaer plan has been revised in order to deal with these complex issues of "evolution" and supernatural powers that the Pokémon possess. It is your responsibility to utilize their abilities in order to create a better world. By training and capturing Pokémon for research, you become stronger and obtain more knowledge that will help you with your mission.

Not all Pokémon will be used for good. Along the way, players will be approached by opposing trainers who are on the same quest to be the best that no one ever was. To catch them all is the real quest and to train them is the cause. You will travel across the land, searching far and wide. You must search the power that's inside each Pokémon. It's your destiny and Pokémon are your best

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friends in a world you must defend. Your courage will pull you through and the Pokémon will teach you and you will teach it. You will battle every day to claim your rightful place. Union College has joined the race and they want to destroy RPI students. Along the way, you will meet these students who will try to thwart your attempts to the best, but you will make their efforts futile. The new Pokémon training program is elite and rigorous. Players will have to obtain badges by passing each final in a semester. After you obtain 8 badges (2 badges for each class year), you must take a final graduation exam in order to test the strength of your resolve.

2.2 Characters

In fictional literature, authors use many different types of characters to tell their stories. Different types of characters fulfill different roles in the narrative process. The following are our character types and the designs we intend to implement

2.2.1 Protagonist:

The antagonist must be as strong as the protagonist. The wills of conflicting personalities must clash.

2.2.2 Nemesis:

This is the "unified face of opposition" The entirety of the opposition experience by the protagonist. (Not just one antagonist, could be a collection or an experience)

2.2.3 Pivotal character:

without a pivotal character, there is no play. This character moves the plot forward and this character knows what he wants. Without him, there is no story. Does not have to be the main character. (i.e. the joker, max payne)

2.2.4 Mentor:

All the teachers, these characters will give you key advice on how to pass certain classes. I want to be able to offer good advice through the game. In your break time while you play this game, maybe you learn tricks to time management. These characters will also assist in backstory. IF player talks to an NPC, dynamically bind NPC to appropriate chunk of script. Game remembers this state data in case there are future interactions.

2.2.5 procedurlly generated conversations

"Player actions (killing a dragon, solving a mystery, and leveling up, buying new clothes) will seed the database with new conversational items—these then spread out like ripples in a pond. Developers can add new content both manually and programmatically, so rumors of a war might persist and grow for weeks before the armies actually get within sight. Like the childhood "whispering" game, where a phrase at one end of the room changes as it is whispered from child to child—exaggeration, substitution, and even mixing of rumors can take place on information stored this way. Players will feel a sense of integration into a larger whole, a real community—and intimately be part of your world as they see their own experiences woven into its history."- (Sheldon (2013-04-03))



3. GamePlay Design

3.1 Level Design

3.1.1 Zone: ECAV/BARH

Your character will start in the ECAV gym where you will choose the starting Pokémon and pick up your room key. (Future implementation: residence hall choice) Possibly, you will be able to choose two starters from the 6 from Generations 1 and 2. All of the starters begin at level 5. You will be given 10 Pokeballs and a Pokedex as well. Shirley will congratulate you on arriving here at RPI. You are sent to your room where you have to talk to your RA and put away your things. The area between ECAV and BARH will be a low level Pokemon start zone inhabited by:

- Ratatat
- Caterpie
- Weedles
- Kakunas
- Spinaraks
- Pidgeys
- Hoothoot
- Digletts
- Ledybas ...

There will be various items strewn across the map:

- Poke balls
- potions
- berries
- new trainers ...

After you arrive in your room, you can access your PC and store Pokémon. The PC will have many functions such as hall of fame checking (after you graduate), decorations for your room. There will

be a Pokémon center and mart nearby.

After becoming situated, you will receive a schedule (list of quests and tasks to do) from your RA. You've got a major test coming up, even though it's your first day (WELCOME TO RPI.) You have to train in order to pass your first gym badge. [Add side quests and other characters for the player to do.] Campus tour function should be added also. You talk to a tour guide who gives you the map of RPI on the way out of your residence hall.

The first quest is to visit the Union and find your student ID where you meet your rival. After this tutorial, you gain access to the rest of campus. This area is very huge and we should add specific characters that generate a lot of the back story. We go back to RPI's founding in 1824. I'd like these characters to be talked to optionally. This allows exposition through choice which won't force players to sit through the dialogue they don't want to hear. Your first class begins in DCC 318. These are a series of Pokémon battles to test your strength and earn money. There is a maze here. Students will be blocking pathways and hiding items. This gives you a chance to explore and make the room less boring. The items set you up to the back hallways of the DCC building. (It'd be cool if we could implement the tunnels).



4. Core Mechanics

4.1 Battle Mechanics

4.1.1 Overview

Players take turns battle each other using Pokémon. Each Pokémon has a specific learn set, which are moves that are learned after meeting a specific condition (leveling, evolution, etc...). In the original game, you could only have four moves at a time. Moves have limited uses called PP or power points. Power points decremented each time the move is used. They had to be restored using an item or by going to the Pokémon center. Each time you got a new move, you had to erase an old move. We plan on allowing players to keep all the moves in memory and having the ability to change learned moves when accessing a Pokémon center. Possible implementations include Move EXP and Move Levels. Players can carry up to six Pokémon on them. Catching Pokémon with a full team sends them to PC storage. The players can access PCs located in their home or Pokémon Center and other locations. Players can improve their growth through.

4.1.2 Stats

These stats are generated based on each Pokémon's individual value(IV) and extra stats can be gained through attaining effort values(EV).



4.1.3 Hit points

Pokémon's life: when it reaches 0 in battle, the Pokémon faints and must be healed at the Pokémon Center. Certain items restore HP in or out of combat. Some moves deal damage based on HP.

4.1.4 Attack

Determines the power of physical attacks.(Bug, Fighting, Flying, Ghost, Ground, Normal, Poison, Rock or Steel-type)

4.1.5 Speed

Determines which Pokémon has first attack in battle. Some items, moves disregard this stat.

4.1.6 Defense

Resistance to physical attacks.

4.1.7 Special Attack

Increases the power of Special Attacks. (Dark, Dragon, Electric, Fire, Grass, Ice, Psychic, or Water-type)

4.1.8 Formulas

$$\begin{split} HP &= \frac{\left(IV + Base + \frac{\sqrt{EV}}{8} + 50\right) \times Level}{50} + 10\\ Other\ stat &= \frac{\left(IV + Base + \frac{\sqrt{EV}}{8}\right) \times Level}{50} + 5 \end{split}$$

The stat is rounded down if the result is a decimal. Note that the numerator is multiplied by two compared to this formula before rounding. For example, the quantity (2*base + 2*IV + sqrt(EV)/4) is rounded down to the nearest integer before multiplying by level and dividing by 100. This is crucial to calculating the exact stats, as otherwise rounding errors will occur.

4.1.9 Individual values

IVs have a range from 0-15, in binary 0000-1111. HP IV takes the final binary digit of the Attack, Defense, Speed, and Special Ivs and places it that order.

4.1.10 Effort Values

Evs behave the same in Generation II as they did in Generation I. Both Special Attack and Special Defense share the EV for Special to maintain compatibility. The amount of Special Evs received is equal to the defeated Pokémon's Special Attack base stat. Generation II introduced the Pokérus, a rare status condition which doubles the effort points gained in battle.

4.1.11 Stat Modifiers

Certain moves have special stat modifiers that decrease specific stats.

Stages	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Mutliplier	2/8	2/7	2/6	2/5	2/4	2/3	2/2	3/2	4/2	5/2	6/2	7/2	8/2
Percentage	25%	29%	33%	40%	50%	67%	100%	150%	200%	250%	300%	350%	400%

This table shows the different stages of modifiers

4.1.12 Critical Hit Chance

Critical hits doubles move damage. Moves begin at stage zero.

Stage	Chance of critical hit
+0	1/16 (6.25%)
+1	1/8 (12.5%)
+2	1/4 (25%)
+3	1/3 (33.3%)
+4 and above	1/2 (50%)

4.1.13 Weight

Weight affects the following game mechanics:

- Low Kick
- Grass Knot
- Heat Crash
- Heavy Slam

Using a Heavy Ball modifies the catch rate of the targeted Pokémon depending on its weight. Gold, Silver, and Crystal weight catch rates

```
Less than 100 kg (220.5 lbs.) -20
Between 100 kg (220.5 lbs.) and 200 kg (440.9 lbs.) +0
Between 200 kg (440.9 lbs.) and 300 kg (661.4 lbs.) +20
More than 300 kg (661.4 lbs.) +30
```

4.1.14 Status Effects

<u>Training</u>: Players must level their Pokémon in order to become stronger and to be able to face tougher challenges.

<u>Levels:</u> Pokémon level by attaining enough experience points. Each level (1-100) has required amount which increases with higher levels.

Evolution: Pokémon evolve into different species at certain levels. This change increases base stats, allows learning of different moves, and sometimes changes the Pokémon's type. Most Pokémon evolve once, some evolve twice, and some don't evolve at all.

Experience Points: 4 types of experience growth or attainment rate.

4.2 Experience gain in battle

- The amount of experience gained in battle depends on the level and species of the defeated Pokémon in battle. The higher the defeated Pokémon's level is, the more experience points it yields. The Exp. All and Exp. Share can also further affect the gain of experience.
- Gain more exp, if the player is in a Trainer battle.

• If winning Pokémon was traded from someone else

4.2.1 slow

• The Slow group features the highest amount of experience required for a Pokémon to reach level 100 in Generations I and II, and the second highest amount since then. Containing many rare, powerful, and Legendary Pokémon, all pseudo-legendary Pokémon, by definition, are in this experience group. At level 100, a Pokémon in this experience group will have 1,250,000 experience points.

$$EXP = \frac{5n^3}{4}$$

4.2.2 Medium Slow

• All normal starter Pokémon are in this group. Requiring 1,059,860 experience points for a Pokémon to reach level 100, it is the only experience group whose level 100 experience is not evenly divisible by 10,000.

$$EXP = \frac{6}{5}n^3 - 15n^2 + 100n - 140$$

4.2.3 Fast

- The Fast experience group is one of the four experience groups introduced in Generation I, with 800,000 experience points making for a level 100 Pokémon. Many Normal and Fairy-type Pokémon are in this group.
- For a list of all Pokémon in this group, see Pokémon in the Fast experience group

$$EXP = \frac{4n^3}{5}$$

4.2.4 Medium Fast

- Requiring Pokémon to have an even 1,000,000 experience points to be at level 100, it is by far the most average of the experience groups, and the one with the simplest equation: to be at a given level, any Pokémon in this group requires experience equal to that level3. This group is also often called "cubic", due to its function being a simple cube of the level.
- This experience group actually grows more slowly than the Medium Slow group up until about level 68 (level 47, if considering amount of experience required reaching the next level).

$$EXP = n^3$$

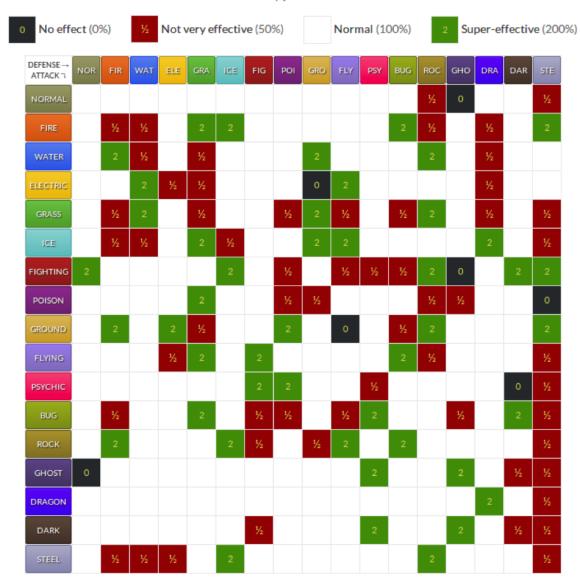
4.3 Type 15

4.3 Type

All moves/Pokémon have types which have strengths and weaknesses. During combat, Players should counter the opponent's Pokémon type.

Pokémon Type Chart — Generations 2-5

created by pokemondb.net





5. Plot Outline Draft

5.1 Notes

-Continuous Story Progression

-Team Rocket/Rival placeholder names.

1st Gym:

DCC (Type counters water)

- Leader: Prof. IHSS

2nd Gym: Russel Sage (Type counters fire) – Leader: Prof. Lynch 3rd Gym: Lally (Type counters grass) – Leader: Prof. Goldschmidt 4th Gym: Mueller Center (Type counters water) – Leader: Prof. ATHLETIC DIRECTOR 5th Gym: Troy (Type counters grass) – Leader: Prof. CIVIL 6th Gym: Pittsburgh Building (Type counters fire) – Leader: Prof. PITTSBURGH 7th Gym: MRC Building (Type counters fire) – Leader: Prof. MATERIALS 8th Gym: Amos Eaton (Type counters water) – Leader: Prof. MATH

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5.2 Plots

Central Plot - Inciting Incident:

Acceptance into RPI.

Central Plot:

The goal of the game is to become the Pokémon master in this region by passing all 8 exams. In the end you have to take the final exam which consists of the Elite Four and Champion and then you can finally graduate.

Side Plot:

You obtain keys to dorm room, pick your Pokémon, and get shown around freshmen hill. Tutorial mostly here.

Side Plot:

You have to pass your first exam in order to access the next area.

Side Plot:

On the way to the exam, you meet your rival, who will have the counter-type Pokémon.

Central Plot:

The first gym is located in DCC and is probably some freshman IHSS course. It has a simple maze puzzle.

Central Plot:

After you beat the gym, the teacher congratulates you and sends you to the Union. The gym leader gives you HM Cut. You are shown around to the shops and games room. (Tutorial for buying/selling and access to PC. Also show you how to use Pokémon center) You are given Pokéballs at the end.

Central Plot:

You find out that the second exam is located in Russell Sage Laboratory. Puzzle will be a series of doors guarded by NPC trainers. Find the correct door to the gym leader.

Side Plot:

On the way to Sage Labs, you run into Team. They try to steal your Pokémon, but you defeat them. You can explore the '86 Field area and the field in front of Sage Labs. There will be wild Pokémon and items around. Cuttable trees strewn around.

Central Plot:

You go through Sage Labs to the fifth floor and solve the puzzle in order to defeat the gym leader. The gym leader congratulates you and you ask about Team Rocket. The gym leader tells you that they are an evil organization that is trying to steal Pokémon and that they probably have ulterior motives.

Side Plot:

The second gym leader needs you to look through the archives in the library to find out about Team Rocket. Team Rocket continually attempts to block your way to the library and inside it.

Side Plot: When you reach the final room on the top floor, you defeat the Team Rocket officer and find out that Team Rocket wants to obtain the use of the weather machine to freeze all the Pokémon and steal them.

Central Plot:

The third gym is located in Lally. Binary puzzle using 4 bit integers possible. Item found at end gives you a key to Team Rocket Base.

Central Plot:

The third gym leader gives you HM Strength and informs you about how to get to Team Rocket Base hidden within the DCC tunnels.

Side Plot:

Using HM Strength, you find your way into the base. You defeat the base, thwart Team Rocket for now, and obtain the master ball.

Side Plot:

Shirley gives you a phone call, congratulating you on your victory and asking for you to return the Weather machine back.

Side Plot:

On your way to the President's office, you meet the leader of Team Rocket. You are surrounded and give back the weather machine. You wake up at a nearby Pokémon center. Rival runs into you outside and you battle.

Central Plot:

Rival informs you where to find the fourth gym badge, located in Sage Labs 2510. This is the game design room. The Pokémon here have smart AI, but weaker stats. The gym leader has a tough and balanced team composition. The puzzle in this gym involves a maze of locked doors. Levers activate different set of locked doors and you have to push the levers in the correct

5.2 Plots 19

Side Plot:

Outside of the labs, a blizzard begins picking up. Ice Pokémon gain power. Landscape changes with snowy tiles. You see Team Rocket kidnapping many frozen Pokémon. You follow them to the JEC building. This level is filled with various mechanics: elevators, moving platforms, moving sidewalks. It should look innovative. Players must utilize these mechanics to go deep underground and confront the Team Rocket Leader. This is a very challenging part of the game and if we incorporate rolling mechanics, we could add dangerous traps such as rolling boulders and fire. As the player moves through these trials, players must find switches that turn off the traps. In the final room, you learn more about Team Rocket's sinister plans. Team Rocket is actually lead by Union College. Union wanted to capture all of RPI's Pokémon and have a better program in order to attract more students. You defeat the leader, but in the end, he destroys the machine, causing it to go haywire. The world's weather now constantly fluctuates.

Central Plot:

You believe the Shirley has the answer to this question, so you go to the Troy building, where the fifth gym leader is located. As you go to Shirley's office, battling other students along the way, random weather affects begin to affect you. When you reach the office, it turns out that she is away on important duties. You go into a classroom where the Civil Engineering gym leader resides. This class room is a structural puzzle. The stairs lead to different places than you expect and you have to figure out the exact route to take in order to make it to the gym leader Teleport mechanisms) After you obtain the badge, the leader informs you that Shirley is aware of the stolen weather machine and that she has already set up her back up weather machine to fix the weather. A blizzard begins to pick up again and the weather becomes more erratic. You follow the snowy path leading from the Troy Building to the MRC building to find out what is going on. Central Plot (Continued):

The gym leader won't battle you until you stop Team Rocket for the last time. All the Team Rocket elites show up to fight you. When you reach the Team Rocket leader or [surprise antagonist]. You find out that Team Rocket actually lied about their true reason for stealing the weather machine. They are attempting to cause chaos in the world in order to summon and trap Lugia/Ho-Oh, the legendary guardians of the sky and seas. Defeating the gym leader causes a cut scene to make the screen flash and Lugia/Ho-Oh shows up. Players can fight them to catch or defeat.

Central Plot: Elite Four ending goes here. Shirley congratulates you at The Approach for completing your 8 exams and lets you know that it's not quite over yet. She lets the player know the location of the Elite Four in the EMPAC. You fight your way up The Approach and go to the EMPAC. Elite One: Prof. ?? Elite Two: Prof ?? Elite Three: Prof?? Elite Four: Prof?? Elite Leader: Shirley? Final Battle: Shirley in the EMPAC. Weather machine randomly changes, boosting powers of random type pokemon. Team battle use powerful pokemon teamed with "WEATHERMACHINE". This weather machine can cast all weather abilities.