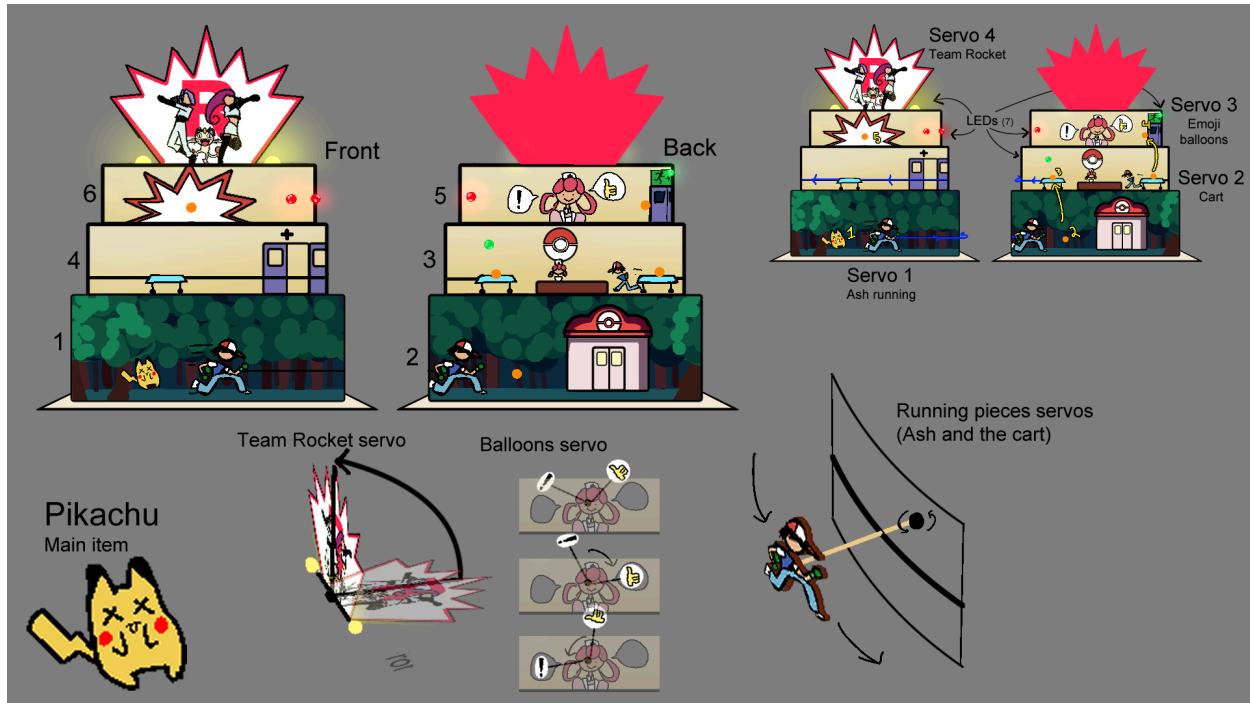


Once Upon An Arduino Enclosure Design  
Team Rocket  
Aashna Garg and Cypress Anderson

## Enclosure

### Mock Up



## Hardware and Code

### For Bottom Layer:

If switch near trees is false (pikachu gets picked up)

Continuous servo to move Ash

If switch in front of pokecenter door is true (pikachu gets placed down there)

180 servo to move Nurse on second layer up from hiding behind the desk

### Middle Layer:

If switch for stretcher is true (pikachu gets places on the stretcher)

Green LEDs light up in direction of where to push stretcher with a track

Not part of the code but when Pikachu gets in the hospital room we could have cardboard sticking out that makes injured pikachu stick to it and then once stretcher goes under it the healed pikachu sticks to it and now pikachu is healed.

If switch on the other side of desk is true (stretcher finishes its round)

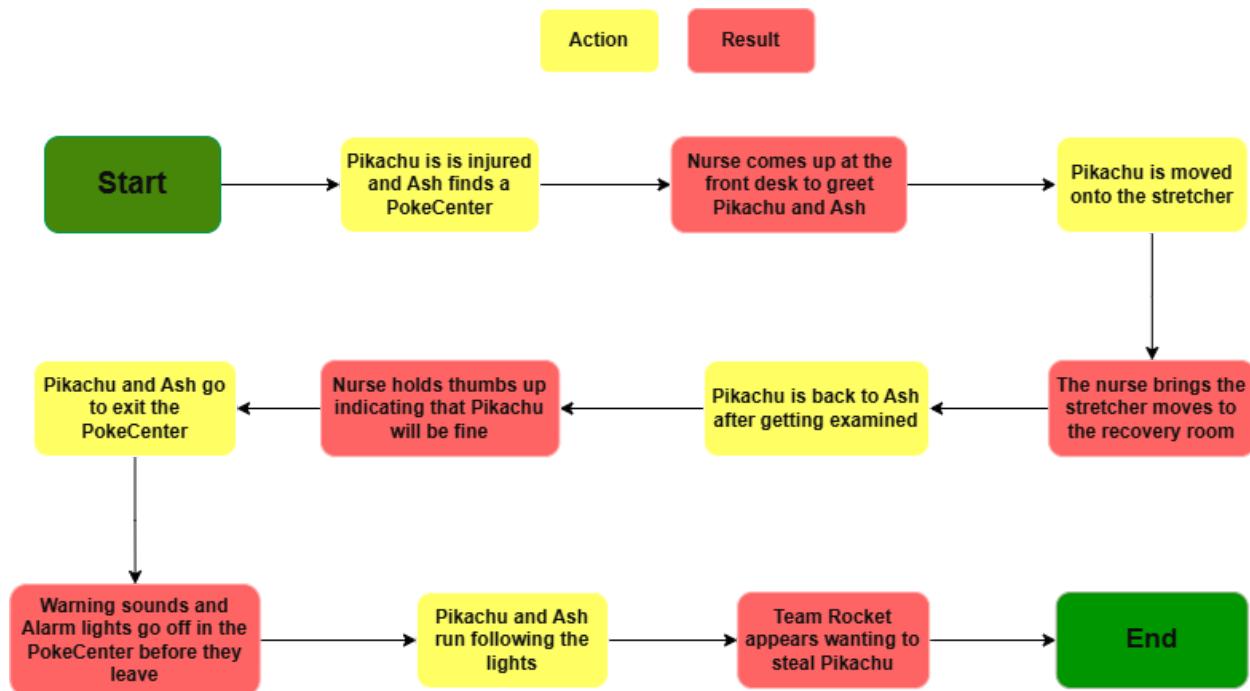
180 servo for nurse joy goes yay and Exit Door LED on top layer lights up

### Top Layer:

If switch at exit door is true (pikachu gets put near exit door)  
RED LED's goes off

If switch at explosion is true (pikachu gets placed on the explosion switch)  
180 Servo to move team rocket up and Piezo plays team rocket theme

### User Flow Chart



### Affordances

The affordances of the mechanisms will be communicated to the user by using brighter colors to denote things that the user interacts with. Therefore, they will stand out from the scene they are in, and they will lead the user's eye better. Another item that we will use is LEDs to indicate where to put items. The movement of certain bright pieces paired with the usage of LEDs will lead the user along the enclosure/story.

## Reflection

Reflect upon your experience playtesting the affordances and mechanisms of your project. What feedback did you get from playtesters? (Detail the findings from all THREE rounds of testing)

Without instruction, were they able to understand how to operate your project? If no, what would you need to change to make this happen?

Did your mechanisms illustrate your chosen story in a comprehensible way? Are the story beats/scenes clear to the tester?

### Team 1: No Place Like Ohm

- Use outline to make pikachu obvious that the user has to move
- It was easy for them to understand once they realized that they had to move pikachu themselves and the dots were easy for them to know where Pikachu goes
- They think it was good that it is stacked so each interaction goes from the next up
- Make each interaction alternating when the layer changes
- Liked dead pikachu

### Team 2: Team NitPickers

- Likes the idea but maybe there might be too much repetitiveness with the running around
- Likes the use of LEDS which leads the action
- Likes the structure but break the monotony of moving pikachu a lot of times and mix up the middle layer
  - Some ideas for that is to maybe have someone drag something and then activate a sensor to lead them to the back
  - Maybe instead of a full 360 make it a 90 degree and paint the background on the other sides
  - Maybe use a piezo to alert the user to the other side instead of a whole 360

### Team 3: Team Professors

- Maybe have multiple Pikachu's instead of moving them all the time so you don't have to reach across the enclosure
- Maybe have a piezo at the end with the theme song
- There might be too much servo movement with the middle layer moving around (We are definitely changing that)

## Playtesting Reflection

The first group that tested our enclosure prototype was the team, “No Place Like Ohm”. When they started to playtest the enclosure, they didn’t realize that they had to move the Pikachu piece until we told them that Pikachu goes on the black dots we made. Because of this, one thing we will change in the next iteration is we will make it more obvious that the user has to pick up Pikachu at the start. However, once they realized that the goal was to move Pikachu, they were able to understand the direction that the story goes in the enclosure. They liked that the interactions are stacked on top of each other, but one thing they recommended was to make each interaction alternate once the layer changes.

The second team that tested our prototype was team “Nitpickers”. They understood the direction of the story and structure, but one thing they recommended was to make the middle layer less repetitive. Our idea was to make the stretcher piece go in a circle around the middle layer, but it was repeating the same action of the bottom layer. Some ways they suggested to make it less monotonous was that instead of having the servo move the stretcher and Pikachu, make the player move Pikachu and have that activate something else to make it more interactive. They also suggested making a piezo play with some sounds that alert the player to another place to put Pikachu.

The third team that tested out the prototype was the professors. When they went to move the Pikachu piece, they recommended having multiple Pikachu’s so that the player doesn’t have to reach around the enclosure to move Pikachu everywhere. They also said that there might be too much movement around the middle layer, which could cause some problems when testing it. Some fun additions that they suggested to add were to add the Pokemon theme song at the end, which would be cool.

In conclusion, we got varied and useful feedback from all the playtesters, and will likely remove the servo from the middle layer, make it more clear that the player has to move Pikachu, and incorporate more interactivity throughout the enclosure.