Cedar Point Roller Coaster Design Project

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Introduction

On Wednesday, August 25, 2010, students from Metro Early College High School visited Cedar Point Amusement Park with their advisories in order to collect data for a design project. Various observations were taken on the overall experience of the consumers at Cedar Point and a cost-benefit analysis was done. Such observations included comfort of customers' clothes, the weather, the price of food/games beyond admission, and other observations on the different aspects of the rides and those riding it. We felt that due to the long wait times and lines, customers may not be as happy as they could be. This study aims to determine how the design of roller-coasters can be enhanced to maximize customer happiness.

Fig. 1: Large crowds at Cedar Point

Problems

The main problems that we faced at Cedar Point were:
- the overly lengthy lines and wait times
  - often felt like you were waiting in line forever.
  - wait time varied from about 1/4 of an hour to about 3/4 of an hour.

We noticed that the front seat for roller coasters had the longest line.
- the front seats are the most demanding
- probably due to the vast crowd (Fig. 1) of customers at Cedar Point who mostly want to go on roller coasters

Fig. 2: Roller Coaster seats on the Dragster

Fig 3: A prototype of the proposed solution of adding seats to roller coasters.

Solutions

One solution we propose, in order to shorten lines, is to **add more seats on each car of each roller coaster** (Fig. 2-3). This would allow more people to get on a roller coaster per ride and would reduce wait times. This could be effective, but all roller coasters would probably have to be redesigned and re-tested for coaster safety. We would suggest testing this by placing test objects, of different weights, on the roller coasters and running the rides several times to assure safety.

Another possible solution would be to **provide televisions and/or other distractions** for the lines of each roller coaster. The distractions could include entertaining music, interactive games, and comedians. This could be used to distract customers and ease the feeling of waiting "forever." Although this could be effective in making customers feel happy and not realize the long line lengths, it could be costly to Cedar Point. This proposed solution is shown in Fig. 2.

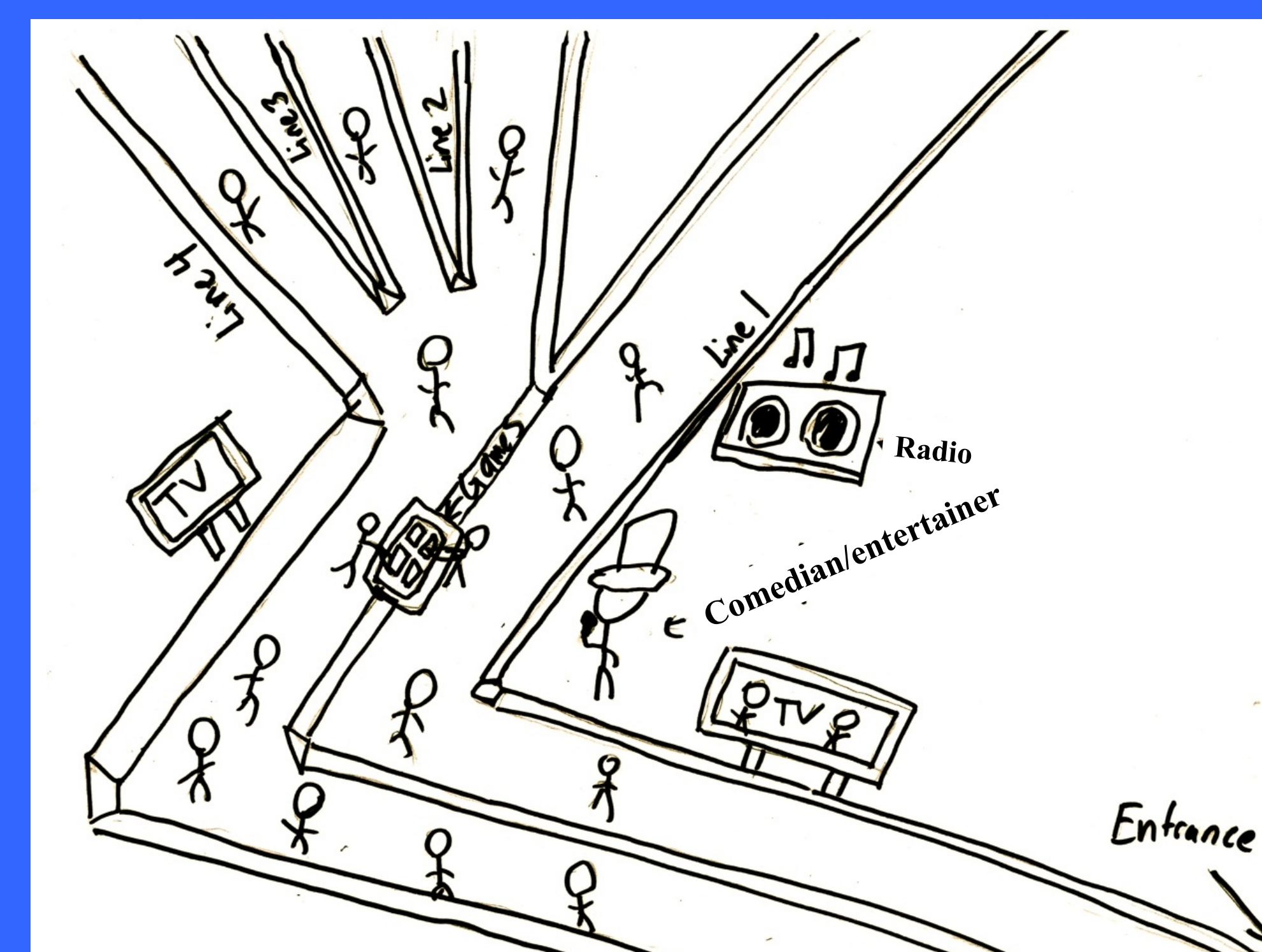Also, Cedar Point could sell **"fast passes,"** which are more expensive tickets that give priority to customers with these tickets over normal customers. This would reduce the wait time for those who are willing to pay extra to get on rides faster.

Fig 4: A prototype of the proposed solution of adding distractions and entertainment to waiting lines.

Conclusion

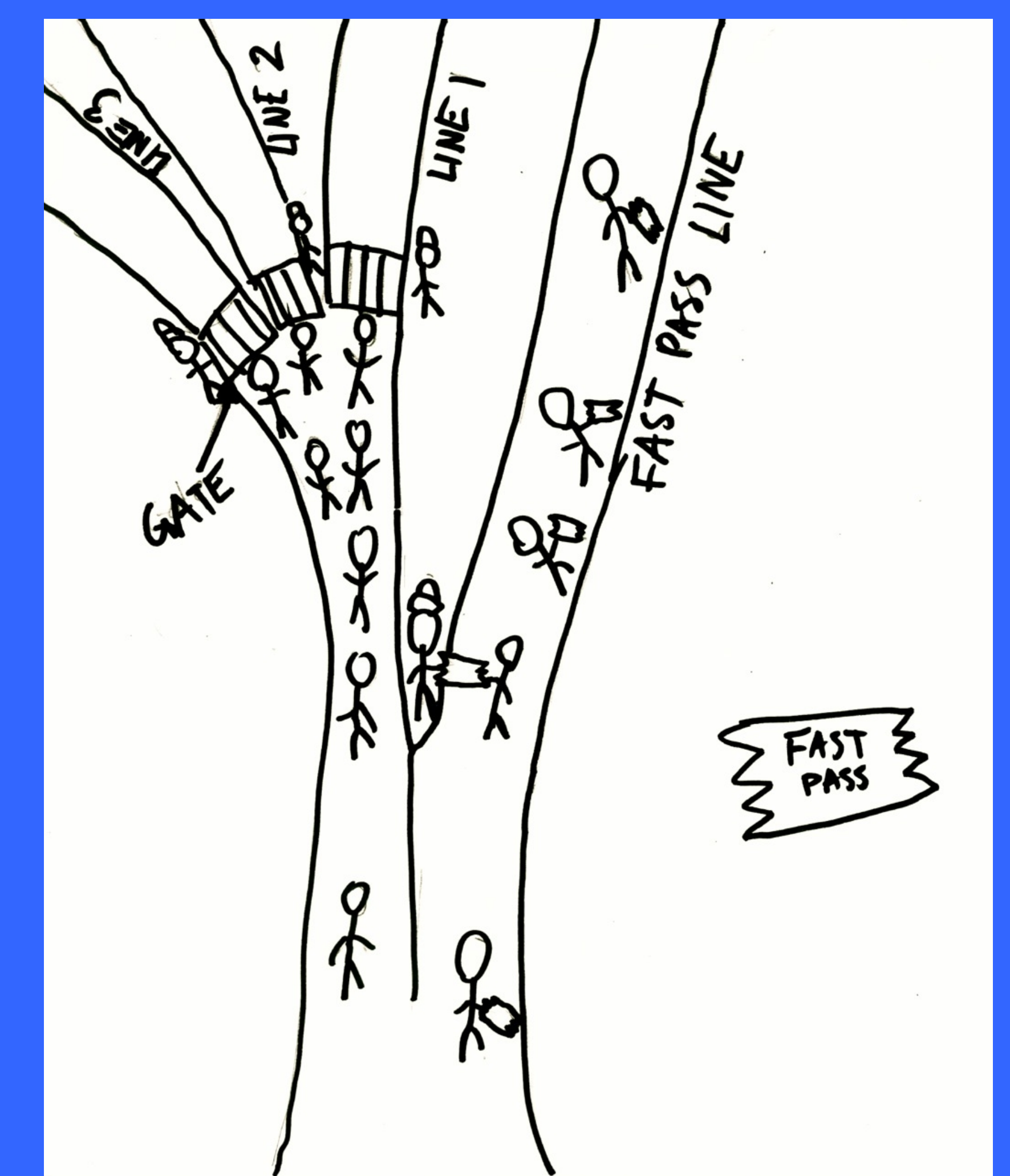The problems that we faced while at Cedar Point were the very lengthy lines and the long wait times. This is due to the large crowds on certain days at the Park. Adding more seats to the roller coasters, adding distractions to keep customers busy, and selling fast-passes so that those who pay more get priority over normal customers could could improve these issues and lead to an enhanced Cedar Point Experience.

Fig 5: A prototype of the proposed solution of employing a fast pass.

Acknowledgements