Project Work Statement

Sponsor

McDonald's Corporation

How much Ice do You need?

Participants

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Potential Participants

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1   Background

McDonald's Corporation is the world's largest chain of hamburger fastfood restaurants, serving around 68 million customers daily in 119 countries. Mcdonald's primarily sells hamburgers, cheeseburgers, chicken, french fries, breakfast items, soft drinks, milkshakes and desserts. In response to healthier consumer taste, the company has expanded its menu to include salads, wraps, smoothies and fruits.

2   Problem Statement

Selling soft drinks is a significant portion of McDonald's business, be it as a thirst quencher, or as part of the extra value meal. The server is not accustomed to putting much thought in measuring the amount of ice put in the cup. This often results in a overly diluted, overly concentrated or overly cold drink for the customer. This is likely to lower overall customer satisfaction, since a drink is a significant complement to a meal. Thus, customers are likely to appreciate if the right amount of ice was added for optimal satisfaction.

3   Approach

We are interested in approaching this problem from 2 different methods. The first method would be experimenting with different types of soda, and different amounts of ice to find out the optimal proportion of ice to soda. If time permits, we would be looking to approach from an alternative method. The second method would be using specific heat capacities of soda and ice, in order to calculate the optimal proportion for the iced soda to have optimal concentration as well as optimal temperature.

4   Milestones

We have the following major deadlines:

- Work Statement due date, Sep 28, 2012,

- Midterm Presentation due date, Oct 12, 2012,

- Progress Report due date, Oct 26, 2012,

- Final Presentation due date, Nov 6, 2012,

- Final Report due date, Nov 30, 2012.

5 Deliverable

5.1 From Team to Sponsor

The following outputs are expected from this project:

- A table of optimal ratios for each different type of soda

- Matlab code with complete set of documentations that outputs optimal ratio based on specific heat capacities

- Numerical experiment results reporting success rate of different ice ratios

- Technical report and presentations summarizing the work.

5.2 From Sponsor to Team

In order for our project to be of successful one, we will need:

- Types of soda used at McDonald's chains

- Computing resources

- Timely responses to inquiries,