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**Background**

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**Description**

The goal for this project is to develop an algorithm that can be used in a Kodak Picture Kiosk that will take a source image and split it into 2 or more image panes horizontally or vertically. The algorithm should support 2, 3, and 4 pane layout styles. The algorithm should result in artistically pleasing splits. We are also to create an application to demonstrate the algorithm as it would function on a Kodak kiosk. This application is to be designed to be the future look and feel of the new Kiosk interfaces to come.

**Spiral Methodology**

We chose to use the spiral methodology because of a high number of risks and the opportunity for sponsor feedback. The Spiral Method allows for multiple releases of prototypes and continuous document review throughout the life of the project. This would ensure that the sponsor was happy with the product we were creating so that we were able to correct any errors or respond to any risks that arose. Because of these periodic releases, details that would have been hard to fix later in the project were fixed early.

**Algorithm**

**Face Detection**

Finding the faces in an image tells the Algorithm where the faces are located. Knowing where the faces are, the Algorithm will find the best split possible that does not split a face.

**Edge Detection**

Finding the edges of an image tells the Algorithm where the edges are located. From their edges, we determine how the best way to split would be based on what edges are crossed.

**Color Segmentation**

By grouping similar colors, we can detect where objects are located in the image. From there, we split around what we find to be the main objects in the picture.

To find the best split, we analyze each picture with these detection algorithms and prioritize the results. Faces have the highest priority because a split face is unwanted in nearly any situation. There are then preferences set on the type of split. Vertical splits are preferred to Horizontal splits and this priority is reflected in our algorithm. From all of our testing and reviewed results, this priority has had the most desired outcomes.

**User Interface**

To display the Algorithms effectiveness we created a User Interface that would not only showcase the Algorithm but be a design that KODAK may use in their future Kiosks. The initial Kiosk interface was developed in the late 1990s and since then, the computer knowledge of the general population has increased significantly.

The image carousel pictured above is quickly becoming the standard for looking at image data in the industry. With touch screen capabilities, it is a familiar and intuitive solution to browsing images.

The concept of “best split” is subjective and making a computer understand subjective decisions is very difficult. We have created an algorithm that looks at several aspects of pictures, creating a best possible split. In order to overcome the subjective aspect of splitting an image “artistically”, we have several user-defined variables that can be used to tweak the algorithm and make it more effective for different types of pictures. Besides the different variables and levels that can be set, we also allow the user to zoom the image in and out as well as move the image around behind the “frame” so that they may align the image to get the best, most artistic look they can come up with.