Background Information

Astropolis is a Windows game application to be targeted specifically towards children with autism spectrum conditions. The purpose of our team was to create a mini-game to add to the already existing set of research games. The mini-games are designed to evaluate and possibly treat patients with autistic spectrum conditions. Due to the nature of children with autism spectrum conditions, these mini-games will be event driven, attempting to give as much control to the user as possible by precisely controlling events. These events are logged in a file so that researchers can view the data in relation to brain activity (EEG data).

Our team was requested to create an additional mini-game that tested the player’s ability to recognize and identify facial emotions. This is due to the fact that many people with autism spectrum conditions have difficulty with this task.

Features

FaceOff is the name of the game we created. It presents players with a board of faces each showing an emotion. Throughout the board, there are spaces which are blank and occupied with a question mark. Using the faces available in the face tray, which is the row of faces at the bottom of the screen, players must fill in the board so that there are three identical emotions in a row either horizontally or vertically. All events in the game are logged with a precise timestamp so that EEG data gathered by researchers can be compared to the events that were taking place.

Face Tray

The face tray contains five faces, each of a different emotion. Initially, players must click on each cell in the face tray in order to load the face. This is done so that the player’s EEG data will accurately represent what their brain activity was when they initially saw the face.

Process

The process methodology used for this project was Extreme Programming (XP). This process was useful because we had poorly defined requirements and we are not experts in Autism. With XP, we were able to gather useful feedback during the development through iterations. The diagram below shows the process we took throughout this project's development.

Technology

The technologies we used were greatly influenced but the existing project that we were building our game to work with. The game was developed utilizing C# with Microsoft’s XNA 3.1 framework. XNA 3.1 requires that developers use Microsoft Visual Studio 2008 as their development environment. A subversion (SVN) repository existed that held the main Astropolis game, so we used the repository for FaceOff as well. Tortoise SVN was used as a SVN client.

Delivered Product

The following diagram shows the flow of operation through the game. Each state represents an event, which would be logged for the use of the research team.