

6.111 Final Project Abstract
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The purpose of our final project is to create an automated dart board. The dart board keeps score for a 2 player game of 301. 301 is a simple and common dart game played between two people. After each turn, the sum of the three darts for each player is subtracted from the number 301 until a player reaches zero. With this game in mind, there are two main components to our dart board, dart detection, and a graphical game interface. The detection of dart impact will be determined by one of three ways. First, we will attempt to perform acoustic triangulation. Using this method, several microphones will be placed around the board. When a dart is thrown the relative amount of time it takes the sound of impact to reach the microphones will indicate the darts position using triangulation. The second possible method utilizes two video cameras, one in the x-direction and one in the y-direction, each of which will output the appropriate coordinate of the darts in the board after video processing. The last consideration for determining dart impact is to create a laser mesh very close to the board's surface and depending where the mesh is broken by the tips of the darts, precise coordinates are obtainable. Once we have the x and y coordinates of the darts for a given players turn, our system illustrates the progress of the game on a video display. Both players are provided with their scores and the location of the darts for the most recent turn. Our automated dart board is a challenging idea that could greatly enhance the experience of a competitive darts match.