5895 Software Design Project – Proposal

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For the design project we plan on building a puzzle game to be played on any android device, but specifically a Nexus 6P as that is the hardware we have available for testing. A level in this game will be a grid with walls placed around as obstacles and the object of the game will be to direct a colored beam of light from an emitter to a corresponding receiver. The level may have multiple emitters and or receivers of various colors or combinations of colors. These levels will be predetermined (not generated by the application) with solutions and ideal scores associated with them. The object of the game is to complete the level and get as close to a perfect score as possible.

In order to direct the beam to the receiver, the player has access to mirrors of varying colors. If the beam of light contacting the mirror matches the color of the mirror, then the beam is reflected. If the beam of light is a different color, it's passes through the mirror as if it is a window. If the beam of light is a combination of colors, it will split into two beams as it hits a mirror. For example, if a yellow beam hits a red mirror a red beam will reflect off the mirror and a green beam will pass through and continue on the original path. The player will have the option to rotate the mirrors, emitters, and receivers as they please, in order to achieve solutions using less mirrors as this will earn them a higher score.

There will be 2 phases of gameplay; a setup phase where the player will place all their mirrors, the angle leaving the first mirror from each emitter will be shown as a guide. Once the player is satisfied with their setup they will hit a play button that will turn on the emitters and check the receivers to make sure they all received the correct light beam. If so the level is complete and score is calculated, if not then the player will get a strike and be asked to adjust their set up. Score will be calculated on a variety of variables including number of mirrors used, setup time, number of strikes, etc. and will also be translated into either one, two, or three out of three stars for the level.