



**CALIFORNIA STATE SCIENCE FAIR  
2012 PROJECT SUMMARY**

<b>Name(s)</b> <b>Jessika Baral</b>	<b>Project Number</b> <b>J1202</b>
<b>Project Title</b> <b>A Novel Way to Strengthen Eye Muscles and Enhance Peripheral Vision</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of this experiment is to see if a device and a procedure can be created to strengthen the eye muscles and improve the peripheral vision range of children and others. <b>Methods/Materials</b> The materials used in this experiment are foam boards, red LED lights, white LED lights, 22 gauge black wires, 100 ohm resistors, 68 ohm resistors, three microcontrollers, three breadboards, tape, a stopwatch, and a standard vision disk. Few new devices were built. Experiments were conducted by asking the test subjects to follow a set of LED lights with their eyes. These LED lights were programmed using a microcontroller to move in a certain direction and at a certain speed. The LED lights in the devices were laid out in two different configurations: circular and diagonal. An endurance score, the number of cycles the test subject completed before his/her eyes became tired, was recorded. Additionally, a different set of test subjects is being asked to follow a new set of LED lights that will move only in the peripheral vision of the test subjects' eyes. More data is being collected. <b>Results</b> Overall, the endurance scores improved by over 100%, from an average of 34.19 to 68.84. The peripheral vision reading ranges of subjects also improved by about 24% for both eyes. <b>Conclusions/Discussion</b> The hypothesis of this experiment is supported by the data that has been already collected and analyzed. The eyes of the test subjects became stronger as per improvements in their endurance scores. The test subjects also attained a wider peripheral vision range compared to their peripheral vision before participating in this experiment.	
<b>Summary Statement</b> In this experiment, test subjects effectively exercised their eye muscles to strengthen their eye muscles as well as increase their range of peripheral vision.	
<b>Help Received</b> My school teacher was my mentor.	