



CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

Name(s) Rishabh Ambavankar	Project Number J1004
Project Title Laser Communication	
<p style="text-align: center;">Abstract</p> <p>Objectives Laser communication is meant to solve the problem with radio wave communication in space. Radio waves degrade over long distances, can get messed with by interference, and cannot hit a single target (everyone can catch the signal). Laser communication solves all of this by using light not radio waves. It has been seen as so far the best way to communicate in space. Laser communication is based on the idea of fluctuations in the energy output of a laser, this can be read by a solar panel or other special equipment. When I was building this I created a simple circuit, on the transmitting end, made of an input, an amplifier, a transformer, batteries, and a laser. On the receiving end I put a solar panel, capacitor, and an amplifier. I concluded by saying that this type of technology will be very useful in the future and that it can be built very easily.</p> <p>Methods 2 Amplifiers Wire Laser Batteries Solar panel Cardboard box Microphone</p> <p>Results Laser communication is based on the idea of fluctuations in the energy output of a laser, this can be read by a solar panel or other special equipment. To create these fluctuations you need to limit the power going to the laser at certain times. I watched the flow of electricity and saw the energy output measured by a multimeter to see if each part of the machine works. I built this using a simple circuit. It starts with the input like a microphone or music, then it goes through an amplifier so the signal can be amplified and read, then it goes through the transformer to boost the voltage, after that it passes through 2 LEDs (this makes sure that their isn t too much power and the laser doesn t melt), then it goes through the batteries which push the power to the laser, but it gives power depending on the message, so the signal can be carried through the fluctuation of power. In the receiving end the solar panel catches the signal, sends it through a capacitor, and finally through an amplifier so it can be read and spoken (the amplifier also acts like speaker).</p> <p>Conclusions</p>	
Summary Statement My project is about trying to send sound at the speed of light through lasers.	
Help Received Vijay Ambavanekar and Meredith Sievers	