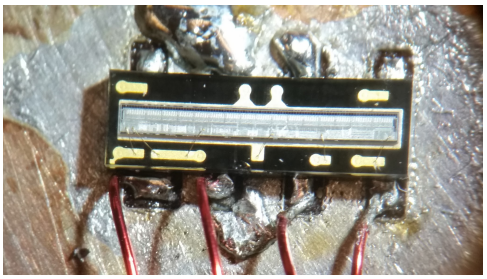
Linear CCD Sensor *Benjamin Casto*



A linescan camera is a camera that, unlike conventional cameras, is exposed one small sliver at a time. In the case of digital cameras, they have a special single pixel wide CCD array. The main advantage of the linear CCD is the speed at which it can output its data. The sensor my project currently uses can operate at up to 10MHz and this is the slowest chip I could source! Currently the sensor is running at only 1MHz. The sensor outputs its 102 pixels as 8 bit values allowing it to cycle through its whole output and store the results at a rate of around 5kHz as set up. This sensor was set up with the intention of using it as a DIY high speed finish camera. Future work will include either output through VGA to a screen or storage on an SD card for later viewing. Currently the FPGA does nothing with the data the sensor gives it. The FPGA was considered the optimal method for using this sensor due to the speed and the number of operations that needed to be performed with precision timing. The code used to program the FPGA was Verilog. *Note: The LED cube on display was built up to have something neat to see at the event as the sensor doesn't really seem to 'do' anything interesting.