Analyzing Matter and Color by a Self- Made Micro Spectrometer Which Works with Visible and Near-Infrared Light

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We did our research about the principles of a spectrometer and designed a micro spectrometer which twenty five dollars, compact, portable and easy to use. A design that would not be affected by the outer light was made for our spectrometer. Also, a design was made in order to increase the durability and to not affect the absorption between the matter and light. So in the top of our spectrometer, there is a sensor attached to an Arduino Nano board. We selected Arduino Nano because it is compact and small. For the sensor, the name of it is AS7265x smart spectral sensor by a company named AMS. It has three micro chips, each having a six-channel measurements ability. Spectrum graphs were drawn in Excel after the data coming from this sensor, which can detect wavelengths between 410nm and 940nm. It takes a measurement every two seconds. The data is interpreted as raw data to serial port with Arduino Nano.

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