**Tcs3200** Color Sensor is a color detection module , which includes a RGB sensor chip and 4 white LED’s. It can detect many variation of colors. It has 8 pins. Namely 1,2-S0,S1 –It is a Input Port where it is used for scaling the output frequency,*3*.OE - Output frequency enable is given as Input *4*.GND(power supply ground) *5*.VDD – Supply Voltage Tcs 3200 operates only between 2.7v to 5.5v. *6*.OUT-Output frequency. *7,8* –S2,S3 – To select the type of photodiodeThere are 3 types photodiodes – Red,Green,Blue and a Plain one. It is distributed through a square matrix. It is done because to get more precision. It is like an array, there are 16 Photodiodes in each color,Thus total 64 Photodiodes are present. Through this array pattern, it senses the color of the light. Then using a Current-to-Frequency Converter the readings from the photodiodes are converted into a square wave with a frequency proportional to the light intensity. Each 16 photodiodes are connected in parallel, so using the two control pins S2 and S3 we can select which of them will be read. So for example, if we want to detect red color, we can just use the 16 red filtered photodiodes by setting the two pins to low logic level , to detect blue we set S2 as low and S3 as high, for green both S2 and S3 are high, for clear S2 is set high and S3 as low.

The main principle here is RGB proportion . Basically, the purpose of LED’s is to illuminate the object in front , which will help in getting accurate readings. So,it shines a white light at an object and then recording the reflected colour through red, green and blue colour photodiodes converts the amount of light to current. For Example , Yellow colour RGB proportion is (255,255,0), For Purple it is (128,0,128), For White it is (255,255,255) and The converter then converts the current to voltage which our arduino can read.

The main Application which I think is it can be used in colour printers(Xerox ). For each and every pixel of the photo,it can detect RGB proportion and can send the RGB color proportion from the inkjet and finally we get the color xerox

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