OPTICAL BIOSENSING SYSTEM BASED ON CMOS

The complementary metal- oxide semiconductor sensor, or CMOS sensor, powers the digital camera phone and webcam. An optical biosensing system based on a standard CMOS technology and absorption photometry is proposed. A webcam CMOS sensor was exploited to gain sufficient magnification of carbon fibers (diameter 7μm) and permanent slides of rat brain sections excluding use of any lens system for the propose. Magnifications around 150 to 200 times were achieved using given CMOS sensor. In addition, different concentrations of yeast cell solutions were observed in spectrophotometric setup prepared. Intensity values were collected using software analysis of data provided by CMOS chip respectively. Also liquid films of yeast cells prepared over glass surfaces were analyzed using this CMOS chip in a similar study. This was to demonstrate CMOS sensor's potential applicability in development of biosensor devices. Finally as a conclusion these studies showed variety of potential applications of CMOS sensors such as study of small sized particles and materials, measuring concentrations of solutions and in development of cell detectors and monitoring devices.