

**Water Temperature Monitoring by using Fiber Bragg Grating Sensor**

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***Abstract***

Fiber Bragg grating (FBG) sensors have been widely utilized as a sensor for measuring strain, temperature, and vibration measurements. In this study, an optical FBG sensor system was developed to monitor the temperature fluctuation in water. The sensor was delicately packaged in order to eliminate the influence of strain acting on the sensor. The sensor had been submerged in iced water and the temperature was constantly increased by using an electric immersion heater. The experimental data were obtained to determine the temperature sensitivity of the FBG sensor. It is found that the relationship between the changes in temperature and changes in Bragg wavelength is virtually higher in linearity with  $R^2 = 0.9997$  and has superior sensitivity which is  $10.1 \text{ pm}/^\circ\text{C}$ . This finding proves that the FBG sensor could be a good candidate for temperature sensing devices.

***Keywords:*** Fiber Bragg grating; Temperature sensor; Water temperature monitoring.