Chapter 6
Conclusion

A prototype of the indoor and outdoor fibre Bragg grating temperature sensor incorporated with no-core fibre sensor systems were designed, developed, investigated, and evaluated successfully. A commercial FBG sensor head with 1553.865 nm center wavelength, 0.24 nm bandwidth, and 3.0 ± 0.1 cm length and 3.5 ± 0.1 cm NCF sensor were used for the purpose. The prototype FBG and NCF temperature sensor systems were capable of detecting the Bragg wavelength shifts and a no-core shift in different indoor and outdoor temperatures, in different liquids, and at different heights, either with or without the presence of focusing elements. Experimental results found a linear relationship between the Bragg wavelength shift, $\Delta\lambda_B$, and temperature, T, for both transmission and reflection systems either in indoor or outdoor measurements. This is also applied in NCF systems. Thus, a prototype FBG and NCF sensing systems for temperature sensors have been developed.

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