

Bachelor thesis review

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Sensor for PCB warping measurement

The goal of the thesis was to review displacement sensors suitable for the measurement of PCB warping during the soldering process in a furnace and to perform an experiment with one type of a sensor. The experiment should have been a test-of-principle type. The sensor's parameters and environmental characteristics were given by a manufacturer (the assumed user). The assignment was challenging for a bachelor student.

In the theoretical part, the author explains the PCB warpage measurement standard and principles of several displacement sensors based on various principles. He comments on the suitability of each sensor for this specific application. There is only one example of a sensor of each type. More sensors from different manufacturers would be appropriate approach. In this part, author's statements are not often supported by a citation. Some of the principles are described only briefly. The practical part describes the experiments made: the sensor design, lenses measurement, final sensor testing.

The student chose a sensor type, designed an experimental setup, performed the measurements and processed the data. The work was complex, the student had to deal also with optical phenomena that were not a part of his study programme. Still, I lacked more independence and use of knowledge learnt during the study – a steady guidance from my side was needed. The purpose of the experiments, their principles and data processing had to be discussed repeatedly. So was it with the mechanical design of the sensor.

The thesis text is a result of many iterations, still, some of my comments were not accepted. The text is logically organised. At places obviously written by the author himself, the English is quite poor. Technical drawings or CAD models of the sensor housing are missing.

However, I appreciate that the device was finally made and proved working.

I recommend the work for defence and award it by grade

D, satisfactory

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