

Annotation

In this bachelor's project, an ultrasonic thickness gauge was designed to control metal products, the main feature of which is the ability to synchronize with mobile devices based on the Android operating system.

The first section was devoted to the analysis of the areas of application of ultrasonic thickness gauges and the relevance of their use. A comparative description of the most popular thickness gauges in our time was made according to the physical principles of measurement, namely ultrasonic and eddy current. Different methods of ultrasonic thickness measurement are also considered, and their analysis made it possible to select an ultrasonic method of thickness measurement for the designed device. The technical characteristics of existing devices with the possibility of synchronization are considered, and their relevance is substantiated.

The second section substantiates the structure of the acoustic path for the designed device and its features, after which the acoustic path coefficient was calculated. The calculations made it possible to synthesize the structural diagram of the device and select its components.

Keywords: ultrasonic thickness measurement, thickness gauge, portable device, synchronisation with a mobile device.