Abstract

The thesis is dedicated to the development and implementation of an automated temperature control system. The research aims to create an efficient and reliable tool for accurate temperature measurement in various fields of application, such as industry, medicine, agriculture, and more.

The work will analyze different methods and devices for temperature control, including thermometers, thermocouples, thermistors, and infrared thermometers. The studied methods will be compared based on accuracy, response time, measurement range, and other parameters, allowing for the determination of the most optimal solutions for the automated temperature control system.

Modern programming methods and tools, as well as hardware resources, will be used in the research process to create a prototype of the system. The developed system will be capable of collecting, processing, and displaying temperature data in real-time. It will also include features such as adjustable observation duration, setting temperature safety limits, and automatic notifications in case of detecting dangerous values.

The main advantages of the developed automated temperature control system will be high measurement accuracy, rapid response to temperature changes, ease of use, and the ability to store and analyze collected data.

The obtained results of the research and system development will be valuable for implementation in various fields where precise temperature control is crucial, contributing to process improvement, increased efficiency, and ensuring safety.

Key words: temperature control, pyrometer, infrared transducer.

Objective of the work: to design a device capable of monitoring the temperature of the object during welding.