

Nowadays, automation of chemical reactions is an important topic. Introduction of new digital devices can reduce the waste of time for titration, especially, when you deal with time-consuming reactions and processes. There are a lot of advantages of such systems, but usually they are made for industrial use, so regular student can't afford such equipment.

During the titration, one of the key tasks is automation, process optimization, and the most efficient use of laboratory equipment and useful time. Without new equipment for proper analysis, it is necessary to spend a lot of time on routine operations, which complicates the work on long-term experiments. So, the purpose of our work was to reduce the cost of useful time of researchers on routine processes during experiments, analyses.

To achieve this goal, the following tasks were set: processing of literature related to methods of chemical analysis; analysis of existing solutions, synthesis of own decision on the basis of the analysis; hardware implementation of the proposed solution; software implementation of the proposed solution; setting the operating characteristics of the device.

I have created the Chemical dispenser to solve this problem. It can automatically dose small volumes for titration process by scheduled cycles. All commands and data served by special web-server provided by microcontroller of the dispenser. It is designed so as you can replace and add different compounds and use it for different tasks.

As a result, the literature was analyzed and a device was developed that allows you to automatically dispense fluid according to user-defined parameters and exchange data through the site, the server of which is the microcontroller of the device.