# 4. KOKKUVÕTE

Käesoleva bakalureusetöö eesmärgiks oli arendada ja valmistada seade, mis juhib mikrokontrolleriga ferrovedelikul põhinevat analoogekraani. Seadme võib jagada neljaks põhiosaks. Esimene on elektrooniline osa, mis hangib serveritest vajaliku info, töötleb seda ja juhib mehaanilist juhtosa. Teine on juhtosa, mis tegeleb magnetitega varustatud ekraani juhtimisega. Kolmas on ekraan, mille ülesandeks on kuvada ferrovedelikuga BTC hinnagraafik. Neljas osa on korpus koos kinnitustega, mis seob seadme üheks terviklikuks osaks ja annab sellele esteetilise välimuse.

Seadme arendus algas esialgse kontseptsiooni paika panemise ja vajaminevate komponentide otsimisega. Seejärel algas seadme elektroonilise osa projekteerimine. Samal ajal viidi läbi katsed mehaanilise kontseptsiooni täpsustamiseks. Peale katsetulemuste analüüsimist alustati mehaanilise osa projekteerimise ja komponentide hankimisega. Lõpuks loodi algoritmid juhtprogrammidele ning kirjutati valmis programmikood.

Seadme prototüübi valmistamine algas detailide tootmise ja ostutoodete töötlemisega. Järgmise etapina tegeleti seadme koostamisega. Valminud prototüüpi testiti ja leiti lahendused tekkinud probleemidele.

Autori hinnangul saavutati lõputöös püstitatud eesmärgid. Läbitud said etapid alates seadme kavandamisest kuni testimiseni. Kuigi valitud ekraanitehnoloogia oli sobiv ja prototüübi funktsioneerimine leidis kinnitust, vajab sellest täisväärtusliku toote loomine edasist testimist ja arendamist.

# 5.  SUMMARY

The aim of this bachelor's study was to develop and make a device that controls an analog display based on a ferrofluid through a microcontroller. The device can be divided into four main parts. The first is the electronic part, which obtains the necessary information from the servers, processes it and controls the mechanical control part. The second is the control part, which controls the screen equipped with magnets. The third part is a screen that displays the BTC price graph with ferrofluid. The fourth part is the housing with fastenings, which integrates  all the device´s parts and gives it an aesthetic appearance.

The development of the device began with the establishment of the initial concept and the search for the necessary components. Then designing electronic part of the device started. At the same time, experiments were performed to refine the mechanical concept. After analyzing the test results, the design of the mechanical part and the procurement of components began. Finally, algorithms were created for the programs and the program code was written.

The production of the device  prototype began with the production of details and the processing of purchased products. The next step was to set up the device. Completed prototype was tested and solutions were found to arising problems.

In the author's opinion the study's goals were achieved. The steps from designing the device to testing it were completed. Although the display technology chosen was appropriate and the functionality of the prototype was confirmed, the creation of a full-fledged product requires further testing and development.