

BUILDING TEMPERATURE CONTROL SYSTEM FOR PCR DEVICE

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Abstract: PCR (Polymerase Chain Reaction), that was invented in 1985 by Karry Mullis, is one of the most widely used techniques in molecular biology and medicine. The PCR is the process for DNA amplification via thermally treated in cycles between three difference temperatures. One of the factors to perfect PCR device is creation an effective temperature control system. The thesis will present about building temperature control system for PCR device. The content of first chapter is general theory. We will study what is PCR, a basic thermoelectric effect – Peltier effect, and two ways to control temperature by close loop. Base on that general theory, a system using microcontroller Atmega8 that has temperature control ability will be designed. In the next chapter, I will build embed program for hardware using C program language and software on computer by Microsoft Visual Basic to communicate with the system. The attained results will be also present in this chapter. The last section are comments, estimate statements and conclusion. Reference documents are at the end of this thesis.

Keywords: *thermoelectric, PCR, temperature control*