This research is the design and construction of digital controller for continuous industrial process which can be developed to be a commercial product in the future.

The developed digital controller is the one that user can program the control configuration. The 16-bit Intel 8088 general purpose microprocessos runs at 5 MHz is setlected as the CPU. This digital Controller can handle 5 analog inputs (1-5 V_{dc}), 3 digital inputs, 3 analog outputs (on 4-20 mA_{dc} and the others 1-5 V_{dc}) and 3 digital outputs. Control functions are arithmetic, logical, basic and PID. With these functions, the complex controls such as cascade, feedback-feedforward, ratio etc. can be implemented. Assembly-like language was chosen for control configuration programming.

Single-loop feedback control and cascade control are tested with the process plant model in the laboratory. The results have proved to be satisfactory with run time of 8 ms./cycle and 24 ms./cycle, respectively.

This controller can, with some modifications, controls 8 complex controls.

The future research will concern: re-design the printed circuit boards to reduce the controller size, endurance tests in industrial environment to find its weak points and to improve the design, develop the microcomputer interface, mneumonic compiler and using microcomputer as PID controller tuner.