

Design and Development of a Portable 8Bit Game Console Based on ESP32

Nama : Gilang Fajar Ramadhan
Student Number : 3103211279
Supervisor : Marzuarman, S.Si., M.T.

ABSTRACT

The rapid development of technology has greatly facilitated human activities and entertainment, with gaming serving as an effective means to reduce stress and enhance cognitive function. This study presents the development of a Portable 8Bit Game Console based on the ESP-32 microcontroller, which uses buttons for control and displays gameplay on a TFT LCD. The console is also equipped with a rechargeable battery. System testing yielded satisfactory results: the LCD displayed outputs with 100 % accuracy, the speaker's average sound was 49,8 dB, buttons functioned optimally, battery voltage averaged 1.27 V, and the SD card data transfer speed was 30 MB/sec. The console operated according to specifications with no errors observed in the testing of five games.

Keywords: game, console, portable