This C code for an LPC17xx microcontroller implements a basic password-protected door lock mechanism using a keypad and an LCD. Initially, the LCD displays welcome and locked messages, prompting the user to enter a password. The correct password is predefined as a 4-digit sequence (1, 2, 3, 4). The main function continuously scans the keypad rows and columns for key presses, updating the entered password array. Once four digits are entered, the code checks if the entered password matches the correct one. If it matches, the LCD displays "Door unlocked" and exits the loop. If not, it resets the entered password and prompts the user to try again.

The row and column scanning functions configure the GPIO pins of the LPC17xx microcontroller to detect key presses. These functions determine which key was pressed based on the row and column values and update the LCD display accordingly. Each column scanning function handles specific keys, adding the corresponding digit or character to the entered password. Delays are used to debounce key presses and ensure proper input handling. This system provides a simple yet effective method for implementing a password-protected lock mechanism using an embedded system.