FACULTY OF ELECTRICAL ENGINEERING
MARA UNIVERSITY OF TECHNOLOGY

FINAL REPORT OF DIPLOMA PROJECT

KEU 380

SIMPLE CODE LOCK

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ABSTRACT

The simple code lock is a simple security system. The circuit described is of an electronic combination lock for daily use. It response only to the right sequence of four digits that are keyed in correctly. If a wrong keys is touched it resets the lock. The circuit is built around two CD4013 dual-D flip-flops ics. The clock pins of the four flip-flop are connected to a,b,c and d pads. This pad will generate the ics when the combinational digits are right. The correct code sequence for energisation of relay is realized by clocking points a,b,c and d in that order. The four remaining switch a/b/c/d briefly pull the clock inputs in high and the state of flip-flop is altered.

This circuit can be usefully employed in cars so that the car can start only when the correct code sequence is keyed in via the key pad. The circuit also can be the safety code. Which it will be our secret number to make sure our safety. It can employed in safety box, door and various other applications.

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INTRODUCTION

1.1 BACKGROUND THEORY

The circuit described is of an electronic combination lock for daily use. It responds only to the right sequence of four digits that are keyed in remotely. If a wrong key is touched, it resets the lock. The lock code can be set by connecting the line wires to the pads a, b, c, and d in the figure. For example if the code is 1756, connect line 1 to the reset pad as shown by dotted lines in the figure. The circuit is built around two CD4013 dual-D flip-flop ics. The clock pins of the four flip-flops are connected to a, b, c, and d pads.

The correct code sequence for energisation of relay r/1 is realized by clocking points a, b, c, and d in that order. The five remaining switch a/b/c/d briefly pulls the clock input pin high and the state of flip-flop is altered. The q output pin of each flip-flop is wired to d input pin of the next flip-flop while d pin of the first flip-flop is grounded. Thus, if correct clocking sequence is followed then low level appears at q2 output of ic2 which evergises the relay through relay driver transistor T1. The reset keys are wired to set pins 6 and 8 of each ic. (Power-on-reset capacitor C1 has been added at efy during testing as the state of q output is indeterminate during switching on operation).

This circuit can be usefully employed in cars so that the car can start only when the correct code sequence is keyed in via the key pad. The circuit can also be used in various other applications.