

Circuit Description

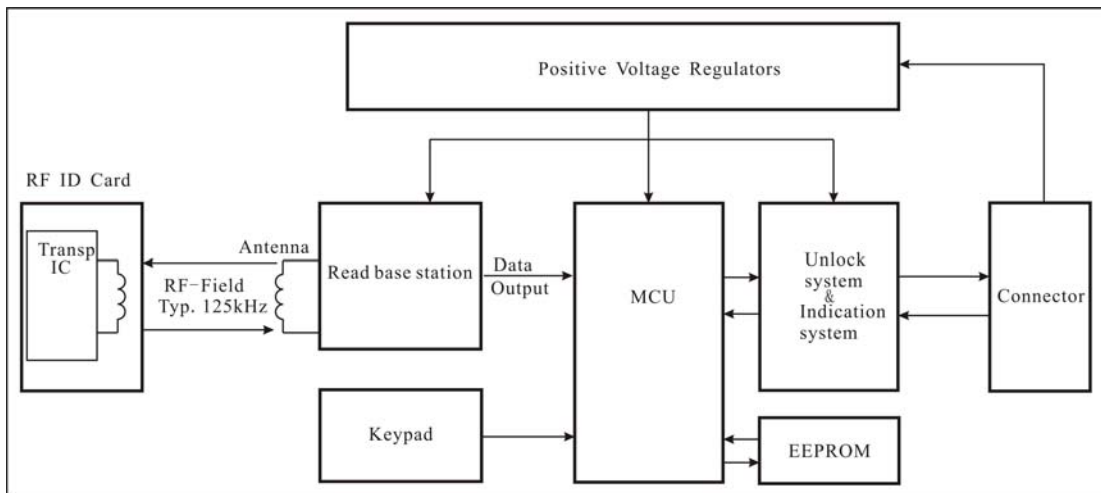


Chart 1

Composing chart 1: circuit for card reader, MCU, circuit for indicator, circuit for stabilized power supply, port for wire connection, key button.

Circuit theory:

circuit for card reader: Consist of chip AT89C2051(U3),LM358(U2),ST4060(U1)external component including (D1,D6,D7,R18,R19,X1,X2,Q1,Q2,C2,C3,C10,E1)。

In normal working condition, the circuit will start by crystal shaker (X1) 4MHz, U1 will radiate through antenna under driving of Q1, Q2, radiate a solid electromagnetic wave, the frequency is 125kHz, when a card involved in the scope of the radiation, the antenna of the card will induce the electromagnetic wave signals of 125kHz, then the internal circuit will be commutated and provide DC voltage to the internal IC chip, the card will radiate the modulated data. In the valid scope, the antenna of the reader circuit will induce this signal and the signal will get coupling by D1,C6, then the signal will be sent to U3. This signal will be demodulated and transacted in U2, the demodulated data will export to the MCU. Control the MCU by pressing key button, the MCU will under adding card state and send the card number to EEPROM for storage. In normal using, the reader circuit working process will not change, MCU will get card number and compare this number with the data which stored in the EEPROM, verify if the obtained card number is same or not, then MCU will take action according to the result of the verification.