

3.1 Circuit Description:

The whole system consists of five main parts: the Power Supply part; the RF Receive/Transmit part; the TEL. Communication part; the MCU & periphery part and the Voice Record/Playback part.

****The Power Supply part***

The system needs three types of DC power: “+9V” “+5V” “+3.6V”. The “+9V” circuit consists of J1 BAT1 D17 D18 C57 C58 that supplies “Buzzer & Driver” “RF Transmit” “+5V” “+3.6” etc. circuits; the “+5V” circuit consists of U11 Q13 R54 C47 C48 that supplies U7 (CM8662) U4 U5 (74HC4053) etc. components; the “+3.6” circuit consists of Q21 R13 R70 C50-52 that supplies U1(MCU) U3(24C02) U8(ISD1620) etc. components and “RF Receive” module.

****The RF Receive/Transmit part***

The central component of receiver module is IC_RX3310A that receiving RF signal of 433.92MHz and demodulating in ASK mode. The demodulated code will send to MCU decoding. The Transmitter module is an oscillatory circuit at 433.92MHz. It sends the code from MCU out by radio frequency in ASK mode.

****The Voice Record/Playback part***

This module's core is IC -- ISD1620, it can repeats the functions of recording or playback by MCU control. For getting loud sound, we add the power amplifier that consists of U7 (CM8662) R1-3 R55 C4-7. The power of U8 and the enable function of U7 all control by MCU, MIC&AUDIO SIGNAL switch through U4 U5 (74HC4053). The speaker's volume can choose by a circuit consists of S2 (the slide switch) R65 R71.

****The TEL. Communication part***

The system only uses DTMF to dial. The DTMF signal is sent by MCU, first is adjusted by RC net (R28 R67 R68 C28 C30 C55), then is sent to the amplify circuit that consists of Q6 Q8 R30-34 R36 R69 D13-16 C31, the signal amplified is sent to TEL. Line through the “TEL. line control” circuit (Q2-3 R18-19) and the “polarity-protect” circuit (D2-5). This part is including other circuits: NO1.the additional TEL. Control circuit (Q1 D1 RL1 R9) that can disconnect other telephone on the line before the system dialing; NO2.the line connected detect circuit (U2 Q18 R4 R10-11 C1-2) that can detect the system isn't at the free line state before dialing; NO3.the DTMF signal detect circuit(C18-19 R14-15) that sends DTMF signal to MCU for decoding.

****The MCU & periphery part***

The MCU (U1--EM78P808) is a core of the system, that it processes all signals and executes all control functions. This part is including the LCD display, the keyboard, the EEPROM etc circuits. The RESET circuit consists of Q1 R6-8 C7 and the crystal oscillator X1 C1-2.