

The Bus Stops Automatically System Design

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Abstract: In the present society, even if the family car is getting more and more, the bus, that is, the bus is still the first choice for the public to go out, because the bus has the advantage of being convenient, fast, cheap and so on. Most of the original bus by the sellers reported that the station, but some sellers with a strong accent, to outsiders to take the bus inconvenience. In addition, with the unmanned ticket car is also more and more, so the bus station is becoming more and more important. My design refers to a use of infrared remote control technology, mimicking the bus self-broadcast station name system, its main chip is AT89C52. When the information is sent to the bus, the bus will have a special receiving circuit to receive the information, and then decoded, when this step will be completed after the signal will be sent to the AT89C52 microcontroller, then LCD12864 began to work, that is, the display station Name. And the use of voice module broadcast station name, the same can achieve the purpose of manually broadcast station name. When the station name is broadcast, the corresponding indicator light is on; the buzzer sounds an alarm. This system consists of ISD4004 voice broadcast part and infrared LCD12864 display, receiving and transmitting three modules

Keywords: single-chip, bus stop device.

1. INTRODUCTION

In today's society, the bus industry is related to many urban residents going out, but the reporting system on the bus still has no way to fully cater to the "taste" of the public, because the needs of each person are different. At present, many people on the bus still need to use the manual button to broadcast the station name, but there are many drawbacks, such as not being able to accurately broadcast the station name. This is not difficult to understand. The whole program may be in operation. Forgot to press the button or wrongly, and when the system is being trimmed, several station name will be broadcasted in succession, so that the occupants who do not understand the road site do not know what to do. Moreover, every time the station name is reported, the driver must operate the station. When the car starts and brakes, when the road is the worst, the driver must not only start or brake the bus. It is necessary to take care of the broadcasting station name system to bring more or less security problems to the car in the forward direction. Although many metropolises have used GPS positioning systems to broadcast their own station names, their cost is too high to be spread

throughout the country, especially in small and medium-sized cities. My design is the main shortcoming of the common bus broadcast station name system. It introduces the bus autonomous broadcast station name system controlled by the single chip microcomputer. This system is cheap and can be widely used.

2. SYSTEM HARDWARE DESIGN

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3. DESIGN AND ANALYSIS OF UNIT CIRCUITS LITERATURE REFERENCES

The receiving and transmitting module constitutes an infrared remote control system, which is controlled by an integrated/integrated chip for encoding/decoding, as shown in Figure 3.1 below. The LED infrared transmitter, code modulation and keyboard matrix form a transmitting module; decoding circuit, demodulation, and electrical conversion The amplifier and light form the receiving module.

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There are many kinds of 51 series MCUs produced by ATMEL. The AT89C52 is one of them. It is an 8-bit CMOS (Complementary Metal Oxide Semiconductor) MCU, which is characterized by high performance, low voltage and 256-bit random memory. The data memory (RAM) and the 8K-bit rewritable Flash ROM are widely used in the electronic field. The chip contains a flash memory unit and a general-purpose 8-bit central processing unit.

AT89C52 includes 40 pins, 32 external bidirectional I/O ports, 2 read/write port lines, 2 external interrupt ports, and 16 programmable timer counters (timers 0, 1, 2). There are two duplex serial communication ports. The AT89C52 can write programs according to the usual method. It combines the frequently used flash memory (especially the rewritable) with the microprocessor, which can save a lot of money.

It is required to use the AT89C52 single-chip microcomputer to realize the function of the bus to broadcast the name of the station. It is required to use remote control to imitate when the bus approaches the stop sign, the Chinese character can be used to indicate the exit name, and the light corresponding to the stop sign is illuminated and can alarm. The following is a brief description of its overall completion. The infrared receiving circuit receives the remote control message and decodes it, and then communicates the message with the microcontroller via the external interrupt 1. As shown in Figure 3.2, after the MCU finishes processing, the ISD4004 and LCD12864 modules are turned on

to display the broadcast station name. P2.4~P2.0 are connected to 5 indicators such as LED5~LED1, and the buzzer is connected to P2.5. The external interrupt of AT89C52 is connected to the signal end of PC3388.

(T2) P1. 0	1	40	Vcc
(T2EX) P1. 1	2	39	P0. 0/AD0
P1. 2	3	38	P0. 1/AD1
P1. 3	4	37	P0. 2/AD2
P1. 4	5	36	P0. 3/AD3
P1. 5	6	35	P0. 4/AD4
P1. 6	7	34	P0. 5/AD5
P1. 7	8	33	P0. 6/AD6
RESET	9	32	P0. 7/AD7
RXD/P3. 0	10	31	\overline{EA}/V_{pp}
TXD/P3. 1	11	30	ALE/ \overline{PROG}
$\overline{INT0}/P3. 2$	12	29	\overline{PSEN}
$\overline{INT1}/P3. 3$	13	28	P2. 7/AD15
T0/P3. 4	14	27	P2. 6/AD14
T1/P3. 5	15	26	P2. 5/AD13
$\overline{WR}/P3. 6$	16	25	P2. 4/AD12
$\overline{RD}/P3. 7$	17	24	P2. 3/AD11
XTAL2	18	23	P2. 2/AD10
XTAL1	19	22	P2. 1/AD9
PDIP Vss	20	21	P2. 0/AD8

Figure 3.1 AT89C52

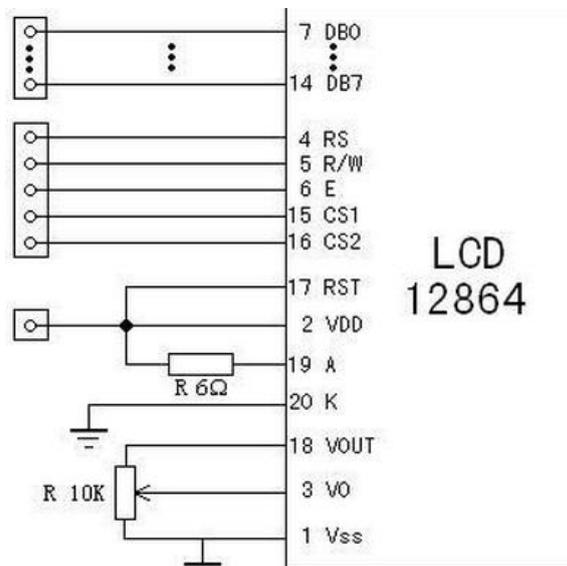


Figure 3.2 Two or more references

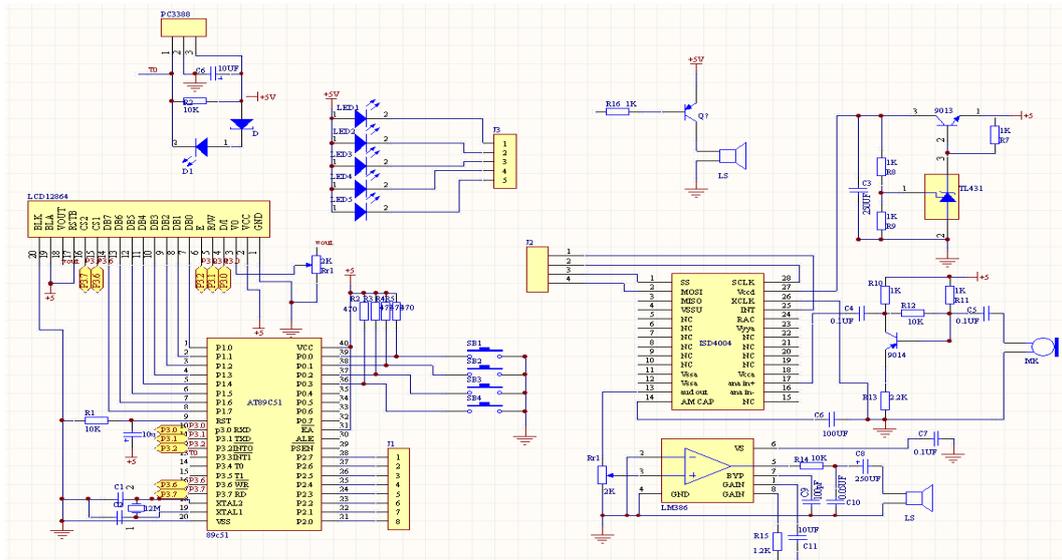


Figure 3.3 General design

REFERENCES

- [1]. Yang Long, Sheng Guofeng, Wang Jun. Design of mobile fire protection system based on single-chip control [J/OL]. Mechanical and electrical engineering technology, 2019 (08): 195-196+232 [2019-08-29]. [://kns.cnki.net/kcms/detail/44.1522.TH.20190823.1533.142.html](http://kns.cnki.net/kcms/detail/44.1522.TH.20190823.1533.142.html).
- [2]. Xue Song, Wen Bo. Design of Urban Intelligent Bus System [J]. Value Engineering, 2019, 38 (23): 274-275
- [3]. Ma Linhong, Chen Tingwei, Hao Ming, Zhang Lei. Bus travel time prediction algorithm based on multi-line information fusion [J/OL]. Computer Science: 1-12[2019-08-29].<http://kns.cnki.net/kcms/detail/50.1075.TP.20190814.1443.048.html>.