

STAND ALONE SECURED MONEY TRASFERRED FROM ACCOUNT TO ACCOUNT USING MICRO CONTROLLER

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ABSTRACT: The main aim of this paper is to provide secure and safe money transactions to the Bank customers by taking their password as their authorized identity at ATMs/Banks/Shops etc. and by providing a Unique Identity Number to every customer by using the password identification. Through this paper, we are going to develop the most security features in money transactions since it is taking the password as the authentication of the Account holders. Whenever we went for shopping, first we have to enter password from the keypad. If the entered password is correct then money is transfers to retailer account from our account. For the fast transactions, we provide a Unique ID to the Customers for identifying the password belong to the user or not. UNIQUE ID is the user phone number with a state code.

The micro controller allows those users, who are authorized to operate the account and display the name of the customer and also display bank account details. If customer has bank accounts in different Banks, the customer select the option from displayed banks accounts and the money is transferred to retailer account from the selected bank account by the customer. If any unauthorized user tries to operate the account then the micro controller switches on the security alarm. The total information about the account holders is stored in the Database (AT24C08) interfaced to microcontroller.

Keywords: AT24C08, ATM, STATE CODE, UNIQUE ID.

I. INTRODUCTION TO EMBEDDED SYSTEM:

An **embedded system** is a special-purpose system in which the computer is completely encapsulated by or dedicated to the device or system it controls. Unlike a general-purpose computer, such as a personal computer, an embedded system performs one or a few predefined tasks, usually with very specific requirements. Since the system is dedicated to specific tasks, design engineers can optimize it, reducing the size and cost of the product. Embedded systems are often mass-produced, benefiting from economies of scale.

Personal digital assistants (PDAs) or handheld computers are generally considered embedded devices because of the nature of their hardware design, even though they are more expandable in software terms. This line of definition continues to blur as devices expand. With the introduction of the OQO Model 2 with the Windows XP operating system and ports such as a USB port — both features usually belong to "general purpose computers", — the line of nomenclature blurs even more.

Physically, embedded systems ranges from portable devices such as digital watches and MP3 players, to large stationary installations like traffic lights, factory controllers, or the systems controlling nuclear power plants. In terms of complexity embedded systems can range from very simple with a single microcontroller chip, to very complex with

multiple units, peripherals and networks mounted inside a large chassis or enclosure.

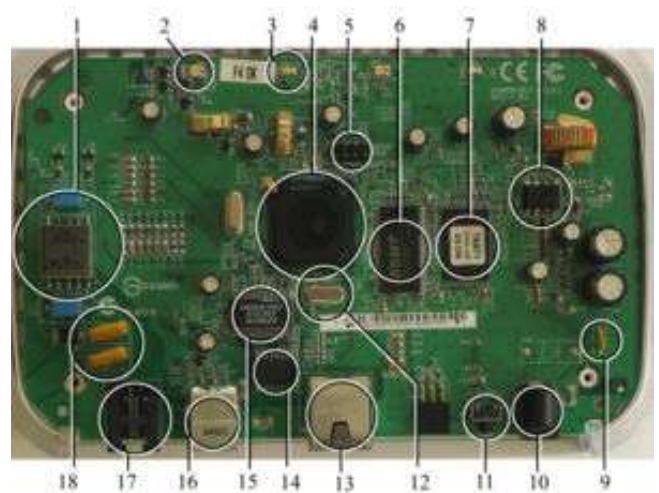


Figure 1.1: Embedded system configuration

Complete studies of all the above points are useful to develop this paper.

2. Block diagram:

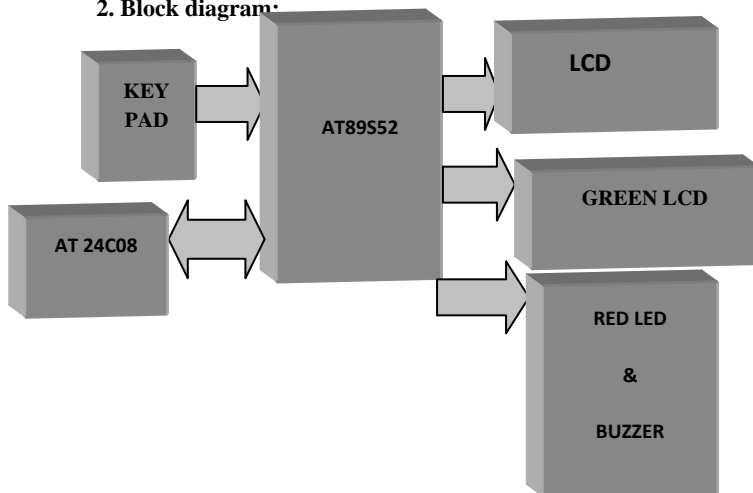


Figure 2.1: Block diagram

3. BLOCK DIAGRAM EXPLANATION:

The main blocks of this paper are:

1. AT89S5
2. 24X4 MATRIX KEYPAD
3. LCD
4. AT24C08
5. LED'S
6. BUZZER

SOFTWARE REQUIREMENTS:

1. PROGRAMMING IN EMBEDDED-C
2. KEIL-C COMPILER
3. ISP PROGRAMMER

4. CIRCUIT DESCRIPTION

4.1 DESIGNING: Since the main intension of this paper is to design a STAND ALONE SECURED MONEY TRANSFER SYSTEM. In order to fulfill this application there are few steps that has been performed i.e.

- 1) Designing the power supply for the entire circuitry.
- 2) Selection of microcontroller that suits our application.
- 3) Selection Key pad.

4.2 POWER SUPPLY SECTION:

In-order to work with any components basic requirement is power supply. In this section there is a requirement of 5V power supply.

Now the aim is to design the power supply section which converts 230V AC in to 5V DC. Since 230V AC is too high to reduce it to directly 5V DC, therefore we need a step-down transformer that reduces the line voltage to certain voltage that will help us to convert it in to a 5V DC. Considering the efficiency factor of the bridge rectifier, we came to a conclusion to choose a transformer, whose secondary voltage is 3 to 4 V higher than the required voltage i.e. 5V. For this application 0-9V transformers is used, since it is easily available in the market.

The output of the transformer is 9V AC; it feed to rectifier that converts AC to pulsating DC. As we all know that there are 3 kind of rectifiers that is

- 1) half wave
- 2) Full wave and
- 3) Bridge rectifier

Here we short listed to use Bridge rectifier, because half wave rectifier has we less in efficiency. Even though the efficiency of full wave and bridge rectifier are the same, since there is no requirement for any negative voltage for our application, we gone with bridge rectifier. Since the output voltage of the rectifier is pulsating DC, in order to convert it into pure DC we use a high value (1000UF/1500UF) of capacitor in parallel that acts as a filter. The most easy way to regulate this voltage is by using a 7805 voltage regulator, whose output voltage is constant 5V DC irrespective of any fluctuation in line voltage.

4.3SELECTION OF MICROCONTROLLER:

As we know that there so many types of micro controller families that are available in the market.

Those are

- 1) 8051 Family
- 2) AVR microcontroller Family
- 3) PIC microcontroller Family
- 4) ARM Family

Basic 8051 family is enough for our application; hence we are not concentrating on higher end controller

families In order to fulfill our application basic that is AT89C51 controller is enough.

But still we selected AT89S52 controller because of inbuilt ISP (in system programmer) option. There are minimum six requirements for proper operation of microcontroller. Those are:

- 1) power supply section
- 2) pull-ups for ports (it is must for PORT0)
- 3) Reset circuit
- 4) Crystal circuit
- 5) ISP circuit (for program dumping)
- 6) EA/VPP pin is connected to Vcc.

PORT0 is open collector that's why we are using pull-up resistor which makes PORT0 as an I/O port. Reset circuit is used to reset the microcontroller. Crystal circuit is used for the microcontroller for timing pluses. In this project we are not using external memory that's why EA/VPP pin in the microcontroller is connected to Vcc that indicates internal memory is used for this application

4.4 SELECTION OF KEYPAD:

In this paper to enter the password I selected the 4X3 keypad. There are many keypad's available in the market but for my requirement this keypad enough.

4.5 CIRCUIT OPERATION:

In this paper we are implementing the money transfer system between two accounts. For that we are designing the stand alone system using microcontroller. Here external memory is used to save the user account information. Whenever user is entered the correct password then it is asking the destination user account as well as how much amount you have to transfer. Then microcontroller is checking and doing the operation. If user wants to change the password here password change option also available. After changing the password that new password is saved in the external memory. Here external memory is used to save the user account balance and passwords. If the entered password is wrong then controller is asking default password. If user is entered the default password then user is entering into the process. Now user password is changed to the default password. If user wants to change the password then he has to select the password change option.

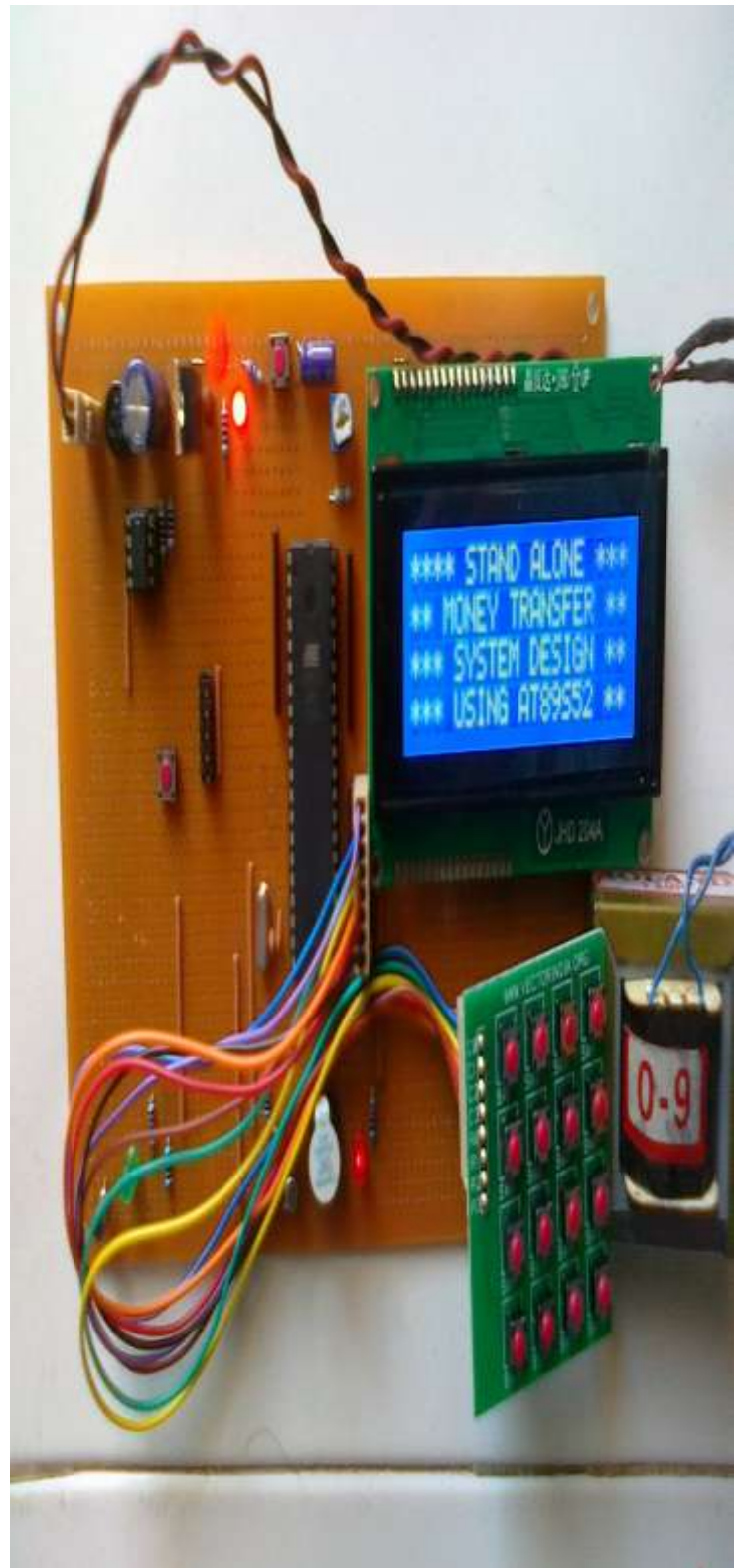


Figure 4.5.1 Stand alone secured money transactions

5. CONCLUSION:

By effectively using all the components and the method of serial communication the kit is designed in such a way that money is transferred from one person to another person using “Stand alone secured money transferred from one account to another account using microcontroller”

6. FUTURE SCOPE: According to research commission of UK office of science and innovation’s horizon scanning centre, transition machines are becoming popular day by day in future they may come in touch screen systems for instance like finger prints and it is both economical and time saving.

6. REFERENCES:

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