

## Path Navigation System

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### ABSTRACT

*In today's world where every minute is important for all of us and so we must spend it accordingly that is the main reason why the use of automation in every activities is increasing day by day. Path navigation system is one of them. With the help of this we can follow the desired path without any trouble. Considering this thing, we have implemented a "Path Navigation System" which is based on interfacing of 128×64 GLCD with PSOC. The main aim of this system is to navigate desired path for the user.*

**Keywords:** ARM controller, GLCD, path navigation, PSOC

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### INTRODUCTION

There are so many navigation system has been already developed to the people to go their destination place. GPS system is very common in automobile vehicle, aircrafts, mobile device etc. With the help of this, we can go to our correct destination place. But the GPS system requires strong network connection. Without strong network connection, we unable to find our destination place. Navigation systems guide the user moving from one place to another have improved recently with the rapid advances in positioning, communication, and spatial data storage and processing technologies.<sup>[1]</sup> In this paper, we have implemented a system that is to work with weak network signals. This service will work in the areas having very weak networks like rural or remote places as all it needs is a very minimal GPS/CDMA connection.<sup>[2]</sup> It is based on embedded systems, which is compiled and burned with the software PSOC creator. Four switches are provided to select the desired destination, whose path will be displayed on the GLCD which is controlled by ARM controller. The displayed path will be in the form of

arrows along with the landmarks and images. We have also used an audio device ipod and an IR sensor for detection.

### HARDWARE DESCRIPTION

The components required to make such system includes.

#### PSoC (Programmable System-on-Chip)

Programmable System-on-Chip (PSoC) is one and only world's programmable embedded system-on-chip integrating an MCU core (8-, 32-bit options), programmable analog blocks (PAB), programmable interconnect, programmable digital blocks (PDB and routing, and CapSense capacitive sensing.<sup>[3]</sup> PSoC Creator is the second generation software IDE to design debug and program the PSoC 3/4/5 devices. The development IDE is combined with graphical design editor to form a powerful hardware/software codesign environment. PSoC Creator consists of two basic building blocks. The program that permits the user to select, configure and connect existing circuits on the chip and the components which are the equivalent of peripherals on MCUs. What makes PSoC

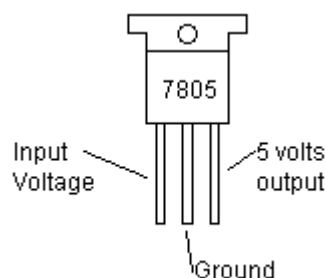
intriguing is the possibility to create own application specific peripherals in hardware. Cypress publishes component packs several times a year. PSoC users get new peripherals for their current hardware without being charged or having to buy new hardware. PSoC Creator also permits much freedom in assignment of peripherals to I/O pins. Figure 1 shows the PSoC.



**Fig. 1.** PSoC.

### 7805IC

The 78xx (in some cases L78xx, LM78xx, MC78xx...) is a group of self-contained fixed linear voltage regulator integrated circuits. The 78xx family is generally utilized as a part of electronic circuits requiring a regulated power supply because of their convenience and minimal effort. A regulated power supply is especially fundamental for a few electronic devices because of the semiconductor material utilized in them have a fixed rate of current as well as voltage. The device may get harmed if there is any deviation from the fixed rate. The AC power supply gets changed over into steady DC by this circuit. By the assistance of a voltage regulator DC, unregulated output will be fixed to a constant voltage.



**Fig. 2.** IC 7805.

The circuit is comprised of linear voltage regulator 7805 alongside capacitors and

resistors with scaffold rectifier made up from diodes. From giving a constant voltage supply to building certain that yield achieves continuous to the apparatus, the diodes alongside capacitors handle lifted productive flag transport. Figure 2 shows the IC 7805.

### GLCD (Graphical Liquid Crystal Display)

The graphical LCD utilized as a part of this test is Winstar's WDG0151-TMI module, which is a 128×64 pixel monochromatic display. It utilizes two Neotic display controller chips: NT7108C and NT7107C. It is a dot matrix LCD segment driver with 64 channel output, and in this manner, the WDG0151 module contains two arrangements of it to drive 128 sections. Then again, the KS0107B (or NT7107C) is a 64-channel normal driver which creates the planning sign to control the two segment drivers. The internal block diagram of the WDG0151 GLCD module is shown in Figure 3.

### Relay

Relay is an electromagnetic device which is utilized to separate two circuits electrically and connect them magnetically.<sup>[4]</sup> They are basically utilized to connect an electronic circuit working at a very low voltage to an electrical circuit which works at very high voltage.<sup>[5]</sup> For example, a relay can make a 5 V DC battery circuit to switch a 230 V AC mains circuit. A relay switch can be separated into two parts: input and output. The input part has a coil which produces magnetic field when a very small voltage from an electronic circuit is applied to it. This voltage is operating voltage. Most commonly used relays are available in various configuration of operating voltages like 6, 9, 12, and 24 V, etc. The output part consists of contactors which connect or disconnect mechanically. In the basic relay there are three contactors: normally open (NO), normally closed (NC) and common (COM).

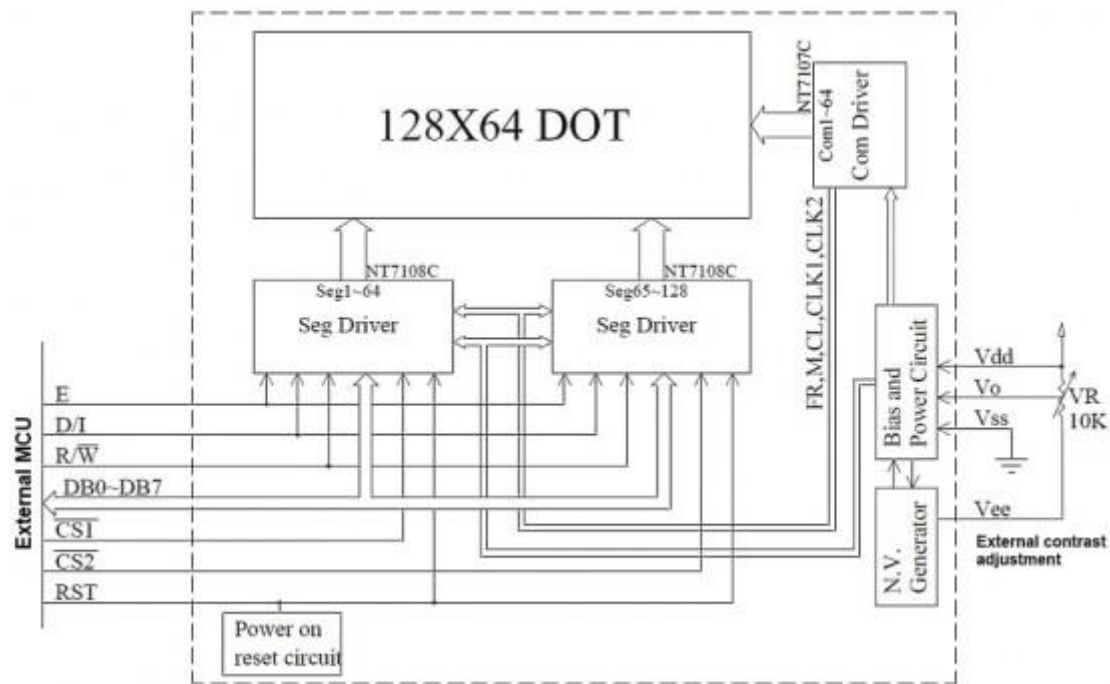


Fig. 3. Internal block diagram of a KS0108B (NT7108C) based 128x64 pixel GLCD module.

## BLOCK DIAGRAM EXPLANATION

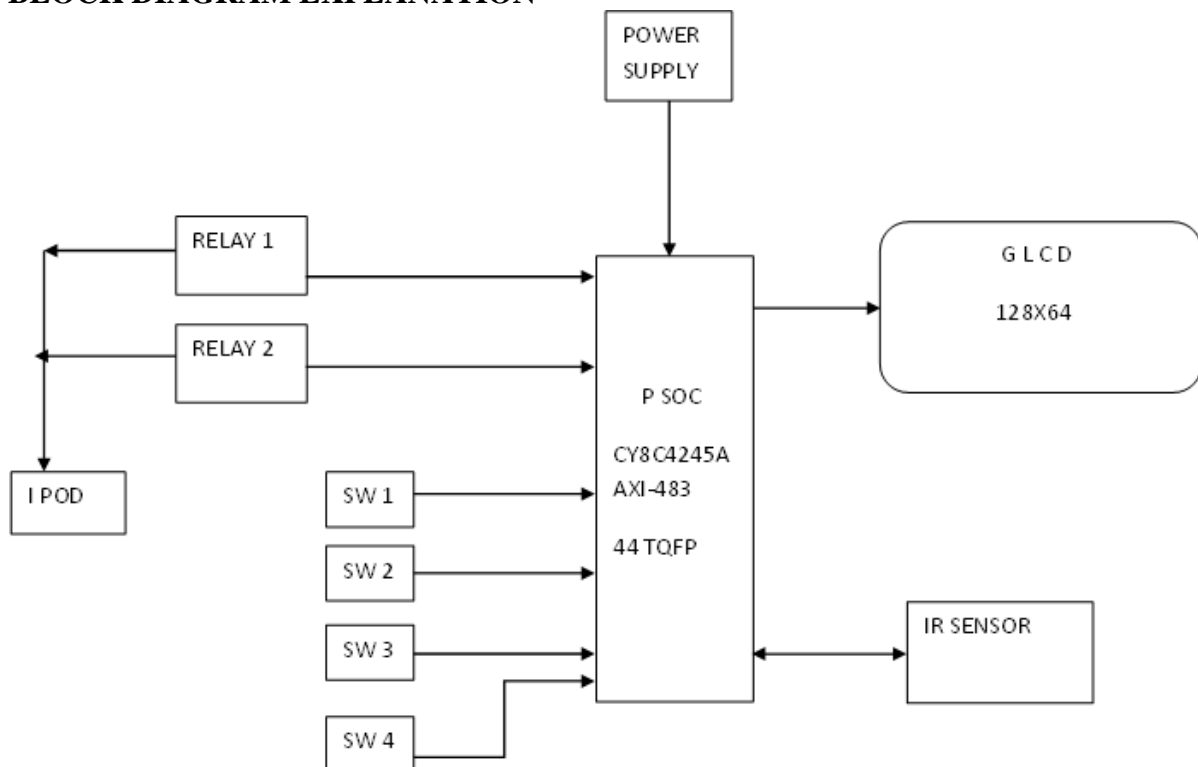


Fig. 4. Block diagram of the system.

Figure 4 shows the block diagram of the system. To implement this system, we have used the embedded system technology. Embedded System is the

combination of computer hardware and software, either fixed in capability or programmable i.e. specifically designed for a particular application. In this system,

we are using power supply of 9 V which is further converted in 5 v with the help of voltage regulator IC7805, 5V because whole circuit works on 5 V. This signal is given to the switches & IR sensor which acts as a input for PSoC. The output device we are using is GLCD and an ipod. The output is given to the PSoC and relays simultaneously. Relay is an electromechanical switch which gives input to ipod and audio is received. The PSoC continuously scan the input from the relay if it receives the input it switches to the output hence the output of ipod will be audible. If any person is detected by sensor than input from the sensor is given to the PSoC. The PSoC scans the programme according to switch which is pressed and displays the desired output on GLCD.

## CONCLUSION

In today's world, a person does not have lot of time to find their destination place. By this implemented system people can

easy track their path for destination. This implemented circuit does not require more power and no internet connections. This system is very useful in crowded place where network is very weak to find the suitable path. This system can be installed in the crowded place, by which peoples can find their destination path.

## REFERENCES

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