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Smart Car Security System Using Raspberry Pi

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ABSTRACT: The challenge pursuits in designing a totally automatic safety get admission to gadget for automobile security applications. Security is the larger subject for an man or woman or a firm. Recognizing the need of safety we developed an automatic security get entry to machine with consumer pleasant get entry to. This Project affords an automotive localization gadget the use of GPS and GSM-SMS offerings. The device allows localization of the automobile and transmitting the location to the proprietor on his mobile cellphone as a quick message (SMS) at his request. This machine is likewise provided with emergency switch which can be become off thru an SMS. This transfer takes the obligation to turns OFF the engine and may be grew to become ON most effective after receiving a predefined password from the proprietor of the automobile.

KEYWORDS: -GPS, GSM,Raspberry Pi,

I. INTRODUCTION

The device may be interconnected with the automobile alarm device and alert the owner on his cellular smartphone. This monitoring gadget is composed of a GPS receiver, Raspberry Pi processor and a GSM Modem. GPS Receiver gets the region data from satellites in the shape of range and longitude. The Raspberry Pi processor techniques this data and this processed data is despatched to the person/proprietor using GSM modem. Raspberry Pi processor also receives the velocity of the automobile and sends it to consumer/proprietor. The supplied utility is a low value answer for car function and status, very useful in case of car theft conditions, for tracking adolescent drivers via their parents in addition to in vehicle tracking gadget packages. The proposed answer can be used in different types of utility, in which the information wanted is requested hardly ever and at irregular time period (whilst requested). In case of automobile robbery conditions the owner can recognise the automobiles modern location and based on that he can forestall the car through sending a predefined SMS message to this machine. After receiving SMS message from owner this gadget mechanically stops the ignition machine for this reason the car will now not characteristic any extra.

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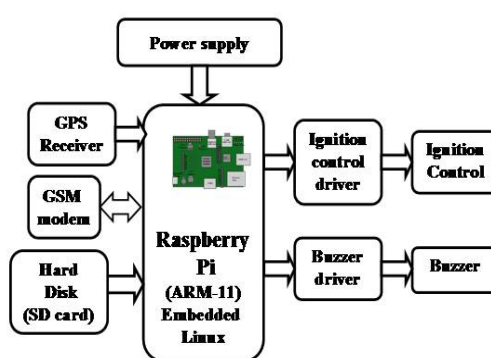
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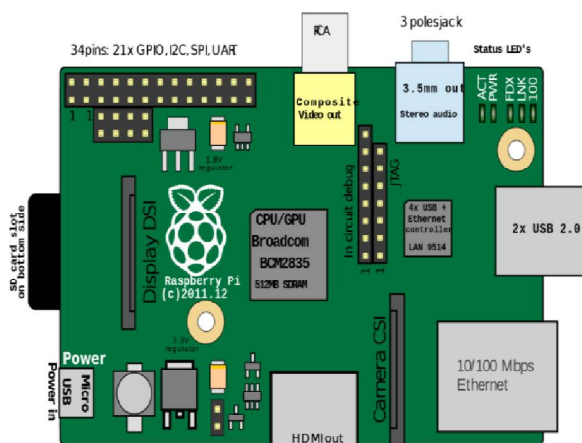
II. IMPLEMENTATION

Block diagram



Raspberry Pi

The Raspberry Pi is a progression of little unmarried-board PCs created within the United Kingdom by using the Raspberry Pi Foundation to enhance the instructing of essential software engineering in faculties and in growing countries. The first version wound up drastically greater famous than foreseen, presenting out of doors its goal marketplace for utilizations, as an instance, mechanical autonomy. It does exclude peripherals, (for example, consoles, mice and cases). Be that as it could, a few embellishments were integrated into a few reliable and informal packs. As indicated by the Raspberry Pi Foundation, extra than five million Raspberry Pis were bought via February 2015; making it the smash hit British PC. By November 2016 they had bought 11 million gadgets, and 12.5m with the aid of March 2017, making it the third top rated "broadly beneficial PC". In July 2017, offers came to about 15 million. They are made in a Sony production line in Pencoed, Wales.



This square chart portrays Models A, B, A+, and B+. Demonstrate an, A+, and the Pi Zero does not have the Ethernet and USB middle point segments. The Ethernet connector is inside related to a further USB port. In Model An, A+, and the Pi Zero, the USB is related specially to the framework on a chip (SoC). On the Pi 1 Model B+ and later fashions the USB/Ethernet chip contains a five-factor USB middle factor, of which four ports are accessible, while the Pi 1 Model B simply offers two. On the Pi Zero, the USB port is additionally related especially to the SoC, however it utilizes a smaller scale USB (OTG) port.

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GPS:

NEO-6M GY-GPS6MV2 GPS module functions the u-blox NEO-6M GPS module with antenna and built-in EEPROM. This is well matched with numerous flight controller boards designed to paintings with a GPS module.



The center of the module, the "GPS unit", is from u-blox, a company specialized in wireless communications and industrial positioning. On board voltage regulator (KB33 MIC 5205;). The module has a small battery, that's, reputedly, used for the cozy storage of configuration statistics on a EEPROM. There is a small inexperienced LED which blinks whilst the area is fixed. The GPS antenna need to be saved with the ceramic part upwards, trying to the skies! There are four foremost pins: VCC, TX, RX, GND.

The NEO-6 module collection is a own family of stand-by myself GPS receivers offering the high performance u-blox 6 positioning engine. These flexible and cost powerful receivers offer severa connectivity options in a miniature 16 x 12.2 x 2.4 mm bundle. Their compact architecture and strength and memory alternatives make NEO-6 modules perfect for battery operated cell devices with very strict fee and space constraints. The 50-channel u-blox 6 positioning engine boasts a Time-To-First-Fix (TTFF) of beneath 1 2d. The committed acquisition engine, with 2 million correlators, is able to large parallel time/frequency area searches, permitting it to locate satellites instantly. Innovative layout and generation suppresses jamming sources and mitigates multipath consequences, giving NEO-6 GPS receivers extraordinary navigation performance even in the maximum challenging environments.

GSM/GPRS Module

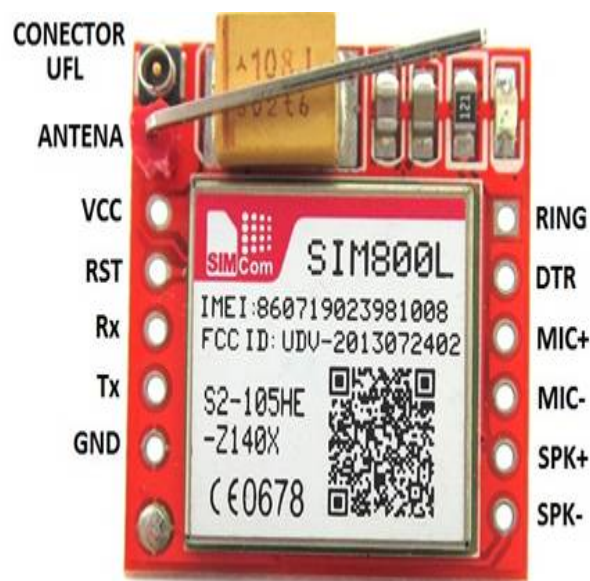
A GSM/GPRS module assembles a GSM/GPRS modem with standard communique interfaces like RS-232 (Serial Port), USB and many others., so that it is able to be easily interfaced with a computer or a microprocessor / microcontroller based totally gadget. The power supply circuit is also constructed inside the module that can be activated by the usage of a suitable adaptor.

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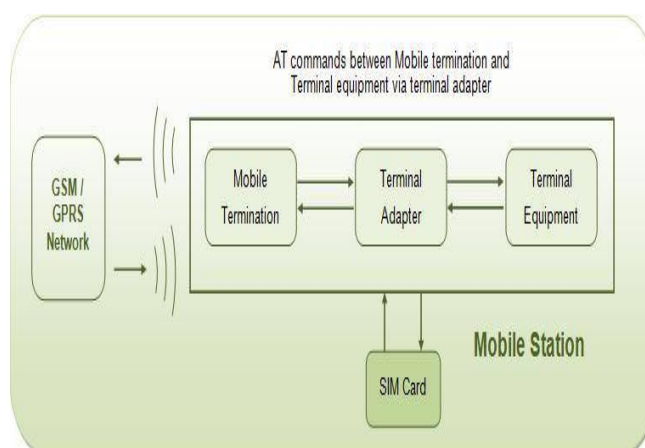
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GSM module

Mobile Station (Cell phones and SIM)

A cell telephone and Subscriber Identity Module (SIM) together shape a mobile station. It is the consumer gadget that communicates with the cellular network. A mobile telephone contains of Mobile Termination, Terminal Equipment and Terminal Adapter.



Mobile Termination is interfaced with the GSM cellular community and is controlled by using a baseband processor. It handles access to SIM, speech encoding and deciphering, signaling and different community related obligations. The Terminal Equipment is an utility processor that deals with handling operations related to keypad, screen, cellphone memory and different hardware and software program services embedded into the handset. The Terminal Adapter establishes conversation among the Terminal Equipment and the Mobile Termination the usage of AT instructions. The communicate with the community in a GSM/GPRS cell is accomplished by way of the baseband processor.

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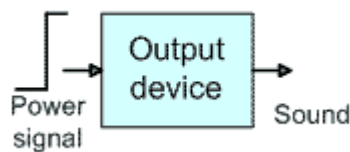
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Buzzer

What does it do?

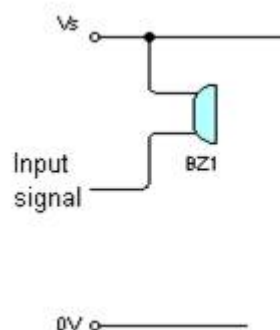
The buzzer subsystem produces an audible tone when powered.



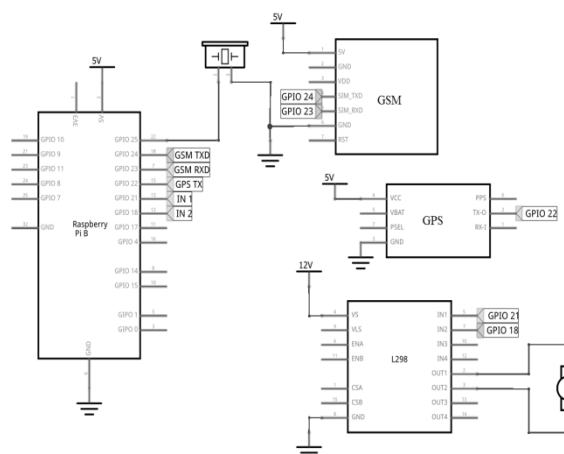
How does it operate?

Buzzer circuit

Buzzers are available in a diffusion of voltages and currents. The strength deliver for the buzzer (which may be break away the deliver for the relaxation of the electronics) ought to offer the voltage needed with the aid of the buzzer. Piezo sounders are a form of buzzer. They need to no longer be confused with Piezo transducers which require an a.C. Enter voltage to power them. Some technique gadgets provide sufficient modern to force buzzers. Typical buzzers require currents inside the variety 10 – 35mA. If CMOS ICs or a higher cutting-edge buzzer are used then a driving force (transistor, Darlington or MOFET) is wanted to boost the current. The circuit on the left shows the circuit wished with a driver.



III. SCHEMATIC DIAGRAM



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IV. KIT RESULTS



V. CONCLUSION

The far off tracking and manage device for environment parameters in greenhouse based on international gadget for cellular communications era is advanced and to start with experimented. The experimental outcomes indicate that the system has a few capabilities as follows: 1) It may be used in agriculture vegetable greenhouse to reveal and manage the environmental parameters to conquer the drawback of conventional measuring and controlling. 2) It may be kept lengthy distance, actual time tracking for parameter of greenhouse and the information may be obtained of greenhouse at any time. Three) It has the benefits of GSM generation , not desiring cables, low energy consumption, cheap fee, excellent robustness, bendy extension, convenient installing over the traditional size and control machine.

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