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BIKE THEFT TRACKING DEVICE USING GPS, GSM MODULE

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ABSTRACT

In a modern technology the vehicle tracking system is designed and implemented for tracking the movement of any equipped vehicle from any location at any time. This device system made good use of a popular technology that combines a Smartphone application with a micro controller. This will be easy to make and also the cost is inexpensive compared to others. The designed device in vehicle device works using Global system for mobile communication, General Packet Radio Service (GPRS) technology that is one of the most common ways for vehicle tracking. The vehicle tracking system IS uses the GPS module to get Latitude and Longitude coordinates at regular time of intervals. The GSM/GPRS module is used to transmit the vehicle and update the vehicle location to a database. A Smartphone application is also developed for continuously monitoring the vehicle location in any place.

INTRODUCTION

This is a cheaper solution than a two ways of GPS communication system where in communication is done in both bidirectional with GPS satellites. This project uses only one GPS device and two-way communication is achieved using a GSM modem. GSM modem with a SIM card used here implements the communication technique as in a regular cell phone by the help of SIM.

You can put the device in secret place in a vehicle and place any part in bike without knowing the device. Afterthis installation of device, If you have a company with hundreds of vehicles, and if you have high cost of equipment and you want to focus on them. where objects or things can interact with each other without a minimal human intervention . It authorizes the objects to interface with each other and the user. Internet of things uses hardware and other sensors to collect the data from the system, software to suspend the data and use it for required purpose and computing to provide interface between various systems. thus, Internet of things can provide information , control and intelligence processing across the system.

1.1 IOT & Transportation: Grip internet of things in Transportation can come up with applications in direction of transportation systems. vigorous interconnection betweenvehicle, architecture, and the driver activates communication between vehicles, smart parking, logistic and fleet management, vehicle security, safety and road assistance. trains, cars , and buses along with the roads equipped with sensors, switch and transform power may provide important information to the driver and passengers of a car to allow.

Smash avoidance systems and observe of transportation of dangerous materials are two typical example consequence. Governmental leverage would also strength from more accurate details about road traffic design for planning .

1.2 Systems used in transportation:

In spite of the various technologies that have been organize in recent years to dissuade vehicle robbery and tracking it, the potency of these systems has not minimized vehicle thefts by a good rate. Also, individual security and pursue systems are designed to accommodate corporations with large number of vehicles for lively management.

1.3 Antitheft System: The main theme of the antitheft system for vehicles is to develop a connection between vehicles. The developed connection activates the vehicle to inform the user in situation of theft and the user can stop the vehicle after sending a instruct . The system should be dense so that it can be placed at a location where a thief cannot discern it and hence the safety of the vehicle and the accuracy ofthe system is not contained. SIM808 Module take out the GPS co-ordinates from the GPS antenna and the micro-controller changes the GPS co-ordinates draw out into a form that can be used for signal processing. If theft is disclosed, the microcontroller along with SIM808 will sends the alert SMS Message to the user and receives the instruct via reply acquire from the user. The Microcontroller changes the signal which is then applied to the relay circuit. The SMS message and GPS co-ordinates is sent by SIM808, GPS antenna in co-existence with Microcontroller.

PROPOSED WORK:

The secondary voltageof transformer is sort out using bridge rectifier. The rectified one way DC is flattening by 1000mf filter capacitor. The smooth DC is then catered to the three terminals, positive regulator called 7805 to get 5v DC supply. The mains voltage ac 230v is step down to 9 volts, finally one sided dc supply is catered to the filter capacitor. The charging & discharging property of capacitor supply pure smooth dc is nearly high value of the secondary voltage. Filtered DC supply is to regulator IC's input . Due to the regulator activity, finally, regulated 5 volts is available at output terminals.

BLOCK DIAGRAM:

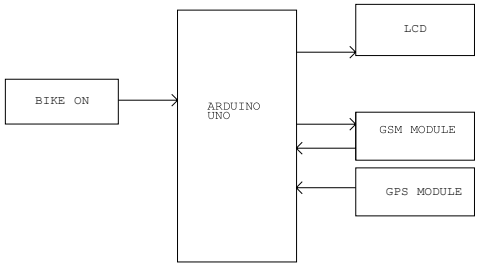

Fig 1: BLOCK DIAGRAM

BLOCK DIAGRAM AND CIRCUIT DIAGRAM DESCRIPTION:

MICRO CONTROLLER UNIT: The Arduino Uno is a microcontroller board found on the ATmega328. It has 14 digital input/output pins 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, an influence jack, AN ICSP header, and a reset button. It has everything need to support the microcontroller. It has 4/8/16/32K bytes of In- System Programmable Flash with Read-While-Write capabilities, 256/512/512/1K bytes EEPROM, 512. 10-bit ADC (8 channels in TQFP and QFN/MLF packages), a programmable Watchdog Timer with internal Oscillator, and five software choice power saving modes.

ARDUINO UNO CONTROLLER

The Arduino Uno is a microcontroller board primarily based totally at the ATmega328 (datasheet). It has 14 virtual input/output pins (of which 6 may be used as PWM outputs), 6 analogy inputs, a sixteen MHz ceramic resonator, a USB connection, a energy jack, an ICSP header, and a reset button.

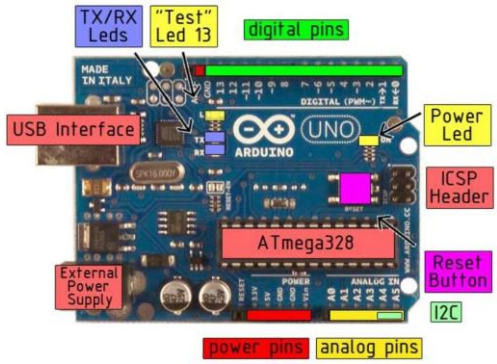

Fig 2: ARDUINO UNO

MEMORY:

The Atmega328 has 32 KB of flash memory forkeep code It has also two kilobytes of SRAM and one kilobytes of EEPROM.

INPUT AND OUTPUT:

They steer at 5 volts. Each pin can supply or receive a maximum of 40 mA and has an internal pull-up resistor of 20-50 kilo-ohms. In inclusion, some pins have exclusive functions.

Pin Descriptions:

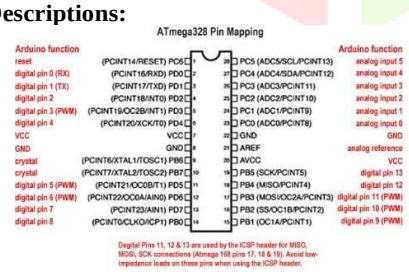

Fig 3: PIN DISCREPTION

1.1.1 VCC: l supply voltage.

1.1.2 GND: Ground.

Inner pull-up resistors (selected for each bit). The PortB that are externally drag low will source current.

If the pull-up resistors are operated. The Port B pins aretri-stated when a reconstituted condition becomes sporty, even the clock is not running. Depending on the clock selection combine also be used as output from the inverting Oscillator amplifier.

1.1.3 three Port C (PC5:0): Port C is a 7-bit bi-directional I/O port with internal pull-up resistors. The PC5.0 output cushion have symmetrical drive characteristics with both high sink and source capacity. As inputs, Port C pins that are seemingly pulled low will source cutting-edge if the pull-up resistors are operate. The Port C pins are tri-stated when a reset condition becomes agile, even if the clock is not working.

PC6/RESET: If the RSTDISBL Fuse is programmed another pins of Port C. If the RSTDISBL Fuse is non-programmed,

1.1.3 Input output port with internal pull-up resistors. The Port D output buffers have symmetrical drive **characteristic** with both high sink and source capability. As inputs, Port D pins that are externally drag low.

1.1.4 If the ADC is used, it must be connected to Voltage collector collector through a LOW PASS.

BLOCK DIAGRAM

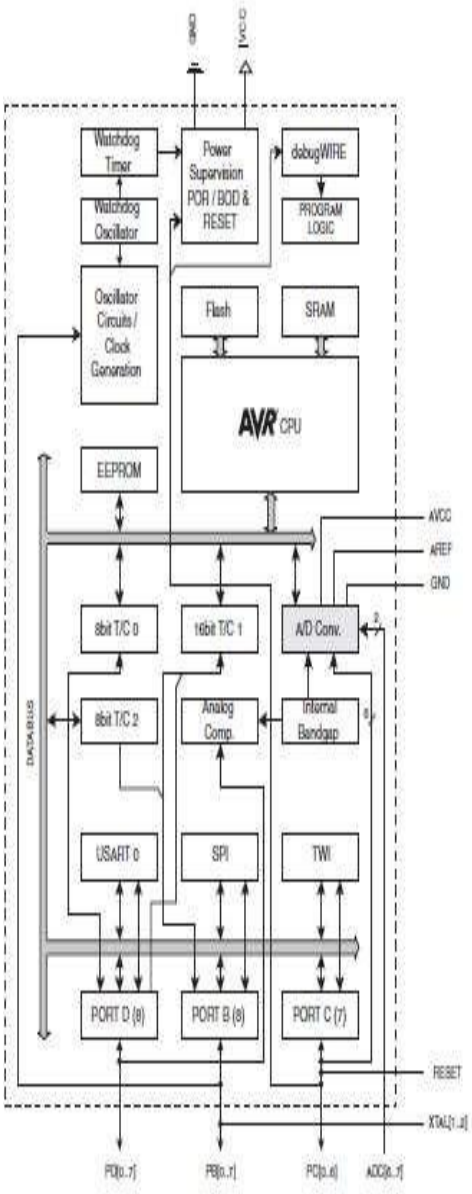

Fig 4: EXPANDED BLOCK DIOAGRAM

The AVR core combines the instruction set with 32 general-purpose task registers. All 32 registers are directly connected to the arithmetic logic block, so two independent registers can be used retrieve .

LCD DISPLAY INTRODUCTION:

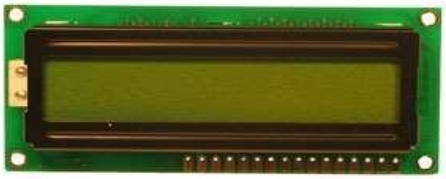

Fig 5: IMAGE OF LCD DISPLAY

Fluid Crystal Displays (LCDs) have materials which join the properties of the two fluids and gems. As opposed to having a liquefying point, they have a temperature range inside which the atoms are nearly pretty much as versatile as they would be in a fluid yet are gathered in an arranged from like a gem. A LCD comprises of two Glass Panels, with the fluid gem material sandwiched in the middle of them. The internal surface of the Glass plates is covered with straightforward cathodes which characterize the character, images or examples to be shown. Polymeric layers are available in the middle .

terminals and the fluid gem, which makes the fluid precious stone atoms to keep a characterized direction point. One every polarizers are glued external the two Glass Panels. This polarizers would pivot the light beams going through them to a positive point, in a specific bearing. At the point when the LCD is in the off-state, light beams are turned by the two polarizers and the Liquid Crystal, to such an extent that the light beams emerge from the LCD with no direction, and subsequently the LCD seems straightforward.

INTERFACING THE PROCESSOR CONTROLLER:

The Module, interfaced to the framework, can be treated as RAM (Memory Mapping), Input/yield, extended equal I/O (Input/Output Mapping). Since there is no ordinary Chip Select sign, building up a strobe signal for the Enable sign (E) and applying proper signs to the Register Select (RS) and read/Write strobe. The resultant sign. All Module timings are referred to explicit edges of the 'E' signal. The 'E' signal is applied just when a particular Module exchange is wanted.

GSM MODEM:

Modem (from modulator-demodulator) The objective is to deliver a sign that can be communicated effectively and decoded to recreate the first advanced information. Modems can be utilized over any methods for sending simple signs, from deficiency identifier circuit.

GSM Modem Product, from Spar Electronics restricted (SEL), gives full utilitarian capacity to Serial gadgets to send SMS and Data over GSM Network. The Board Level item can be incorporated into Various Serial gadgets in giving them SMS and Data ability and the unit housed in a Metal Enclosure can be kept outside to give sequential port association. The GSM Modem underpins famous "AT" order set so clients can create applications rapidly. The item has SIM Card holder to which enacted SIM card is embedded for typical use. The capacity to this unit can be given force supply.

GPS:

General Description GPS :

Fig 6:GPS MODULE

The Sky Nav SKM53 Series with installed GPS reception apparatus empowers elite route in the most rigid applications and strong fix even in cruel GPS perceivability conditions. It depends on the high - execution highlights of the MediaTek 3329 single-chip design, it's – 165dBm following affectability broadens situating inclusion into place like metropolitan gorge and thick foliage climate where the GPS was unrealistic previously. The 6-pin UART connector configuration is the least demanding and helpful answer for be installed in a compact gadget and recipient like PND, GPS mouse, vehicle holder, individual finder, speed.

POWER SUPPLY:

A force supply circuit is highly fundamental in any venture. This force supply circuit is intended to get directed yield DC voltage. 7805 IC is utilized to give the consistent 5v inventory. Scaffold rectifiers utilizing diodes is utilized for correcting purposes. The force supply area is for providing voltages to the whole circuit unit.

CONCLUSION:

The task on BIKE THEFT TRACKING DEVICE USING GSM and GPS is turned out great, getting the boundary visualized during the theoretical stage. During the plan, just as during the development, more noteworthy consideration has been placed into evade hiccups at the last stage. The PCB designs were set up with nearly care to fuse the circuits in a measured way. The circuit is made as straightforward with respect as far as anyone is concerned. Additionally, parts were chosen remembering their accessibility and cost. It was an exceptionally fascinating cycle of building up the model, stage by stage and testing something similar.

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