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Smart Luggage Security System

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Abstract: During the travelling through public transport, protection of baggage is very much important issue. Generally it was done with chain and key. But that security system frequently failed and people lost their valuable things. So the main aim of this security system is to build user friendly, durable, portable, cost effective and efficient protection of luggage. It is a simple password protected circuit. When someone tries to lift the luggage, without providing password it will generate a warning alarm. The alarm is very much helpful during travel in the bus or train even at the night time. When any person tries to steal the luggage, the circuit will give a warning alarm.
Keyword: RFID Reader, GSM, GPS, SIM, ARM7, Keypad.

I. INTRODUCTION

While travelling in public transport such as buses or trains, people usually carry expensive belongings and are quite insecure about their safety. Even though after locking the luggage thoroughly, there is always a worry about it. To solve this problem here is a simple luggage security alarm circuit.

When any attempt of stealing of the luggage happens, the circuit will give a warning alarm. This electronic circuit is password protected. Then the passenger has to enter a password through a matrix keypad to activate the circuit and they can relax without worried about it. Because after activating the circuit if unwanted attempt to lift the bag happens, then circuit will generate the warming alarm. The messenger has to enter the password again to deactivate the alarming circuit as per their requirement. The same password will be given during the activation and deactivation of the alarming circuit. The same password will be given during the activation and deactivation of the alarming circuit.

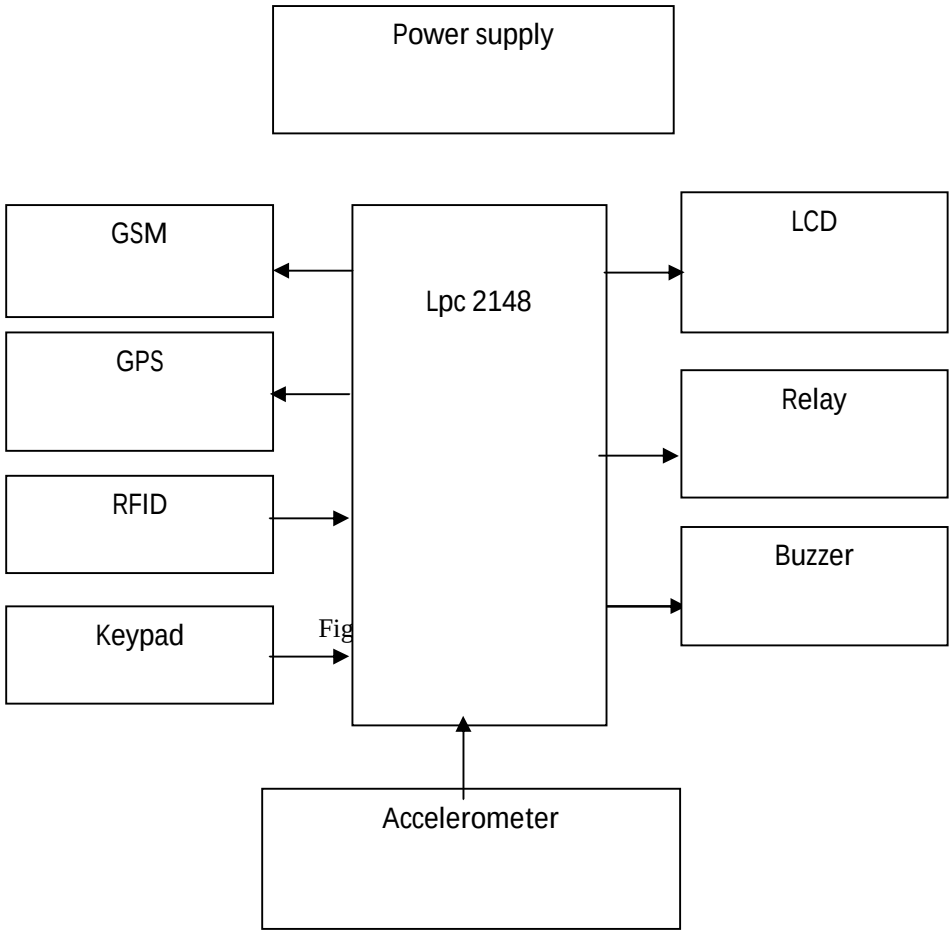
The GPS is used to track the location of the bag.Luggage devices have been in use for years and are typically comprised of suitcases, purses, briefcases, and computer cases, and various other storage devices commonly utilized while traveling. Conventional luggage may typically be “locked” to prevent an unauthorized third-party from opening the luggage. However, between destinations, individuals must typically transport their luggage from one location to another there by exposing them to the risk of theft or loss during journey.

There is insecurity of system and people lost their valuable things. So the main aim of this security system is to build user friendly, durable, portable, cost effective and efficient protection of luggage.Conventional luggage does not provide a system for security of the luggage to avoid theft. Conventional luggage is highly susceptible to theft while an individual is physically transporting the luggage. A primary object of the present invention is to provide a luggage security system that Will overcome the shortcomings of the prior art devices.A further object is to provide a luggage security system that allows a user to perform a task without having to closely monitor their personal article.

Another object is to provide a luggage security system that is comfortable and easy to utilize for an individual transporting luggage.An additional object is to provide a luggage security system that that may be easily stored in a compact location when not in use.Another object is to provide a luggage security system that secures various personal articles such as but not limited to luggage, briefcases, bags and the like.

II. BLOCKDIAGRAM

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Fig

Here the +12v, +5v and +3.3V DC power supply are used. The main function of this block is to provide the required amount of voltage to essential circuit. +12v is given to relay driver. To get the +5v dc power supply we have used here IC 7805, which provides the +5v dc regulated power supply. For the processor 3.3V is provided through the IC LM 1117. The relay driver has the potential to drive the various controlled devices. In this block mainly we are using the transistor and the relay driver circuit we are using to control the light. Output signal from LPC2148 is given to the base of the transistor, which energizes the particular relay, because of this, appropriate device is selected. A piezoelectric buzzer provides audible tone when the signal provided from the LPC2148 processor. It also beeps when the device identified by the RFID tag. GPS is used to detect the latitude and longitude of the particular position and it also shows the exact time. It detects these values anywhere on the earth. It is the main source of the latitude and longitude of the luggage to know location, or even for theft tracking of the luggage. This gadget gets the coordinates from the satellite for each and every second. GSM is a second generation (2G) mobile network. This GSM device consists of sim slot in which a sim can be inserted which has a unique number, this unique number is used for contact. This GSM device consist a unique number called imei number and this is different for each and every hardware kit. The data from GPS is transmitted to given mobile through this GSM iself.

LCD is a flat panel display, electronic visual display that uses the light modulation properties of liquid crystals The Interfacing 4 bit LCD with LPC2148 program is very simple and straight forward, which display a text in 2 X 16 LCD module using 4 data lines only. The Passive RFID tags don't require batteries or maintenance so we are using these tags. The tags also have an indefinite operational life and are small enough to fit into a practical adhesive label. The tag reader is important for powering and communicating with a tag. The tag antenna captures energy and transfers the tag's ID. The ADXL335 is a small, thin, low power, complete 3-axis accelerometer with signal conditioned voltage outputs. The product measures acceleration with a minimum full-scale range of ±3 *g*. The measurement of the acceleration of gravity in tilt-sensing applications, resulting from motion, shock, or vibration. A keypad is a set of buttons arranged in a block or "pad" which usually bear digits, symbols and usually a complete set of alphabetical letters. If it mostly contains numbers then it can also be called a numeric keypad. Here we are using 4 X 4 keypad.

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III. CIRCUIT DIAGRAM

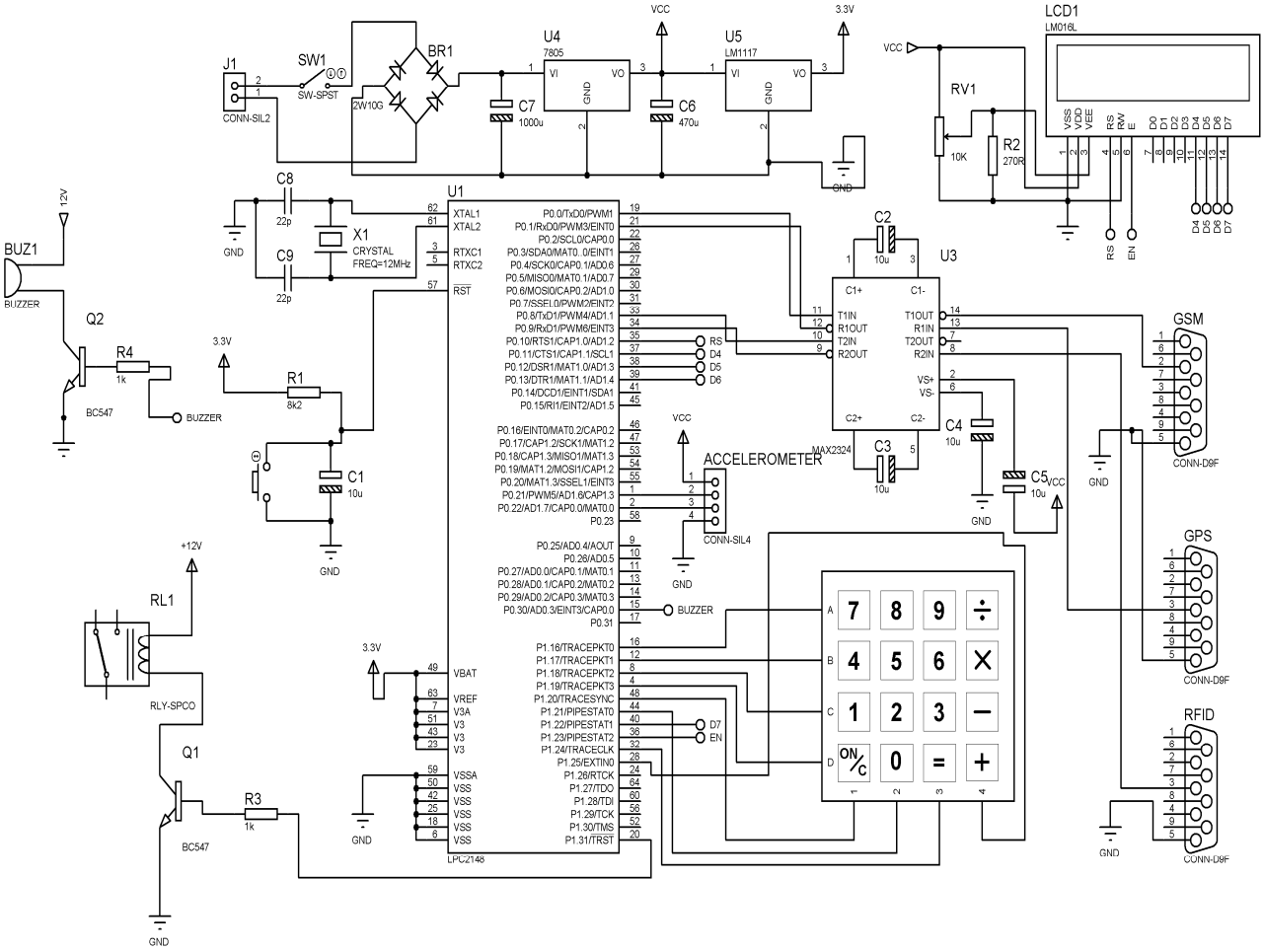


Fig.:-circuit diagram of system

The relay is connected at the collector terminal of the transistor BC5478 and the base terminal of the transistor is connected to the pin no 20 of the LPC2148 microprocessor. It is operated on the 12v power supply that is taken from the power supply. The buzzer is connected at the collector terminal of the transistor BC5478 and the base terminal of the transistor is connected to the pin no 15 0f the LPC2148 microprocessor. It is operated on the 12v power supply that is taken from the power supply. The accelerometer is connected to the pin number 1, 2 of the LPC2148.The MAX232 is used for interfacing of serial communication components to the LPC2148. The GSM module is used only for output purpose, thus the pin number 2 of GSM module is connected to the pin number 14 (T1OUT) of MAX232 The GPS module is used only for tracking purpose that means act as input ,is connected to pin number 13(R1IN) of MAX232 . The RFID is connected to pin number 8 (R2IN) of MAX232.The LCD used in 4 bit mode. The D4, D5, D6, D7 are connected to pin number 37,38,39,40 respectively. The RS and EN are connected to pin number 35, 36 of LPC2148.

IV. WORKING OF SYSTEM

This electronic circuit is password protected. The passenger has to enter a password through keypads to activate the circuit and they can relax without worried about it. Because after activating the circuit if unwanted attempt to lift the bag happens, then circuit will generate the warming alarm. The passenger has to enter the password again to deactivate the alarming circuit as per the requirement. The same password will be given during the activation and deactivation of the alarming circuit. If unwanted lift is attempted the accelerometer sense the changes ,the rfid is used to check the proper luggage from the group of luggage's The GPS is used to track the location of the bag and send to the user mobile via GSM.

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V. CONCLUSION

The password will be locked as long as they are willing to do so. Until and unless they unlock the circuit using the wrong password the alarm will not make sound .If wrong password is given then alarm will make sound. When circuit is activate then if any unwanted attempt to lift the bag happens, then circuit will generate the warming alarm by giving the exact location of luggage and sending the alert message.

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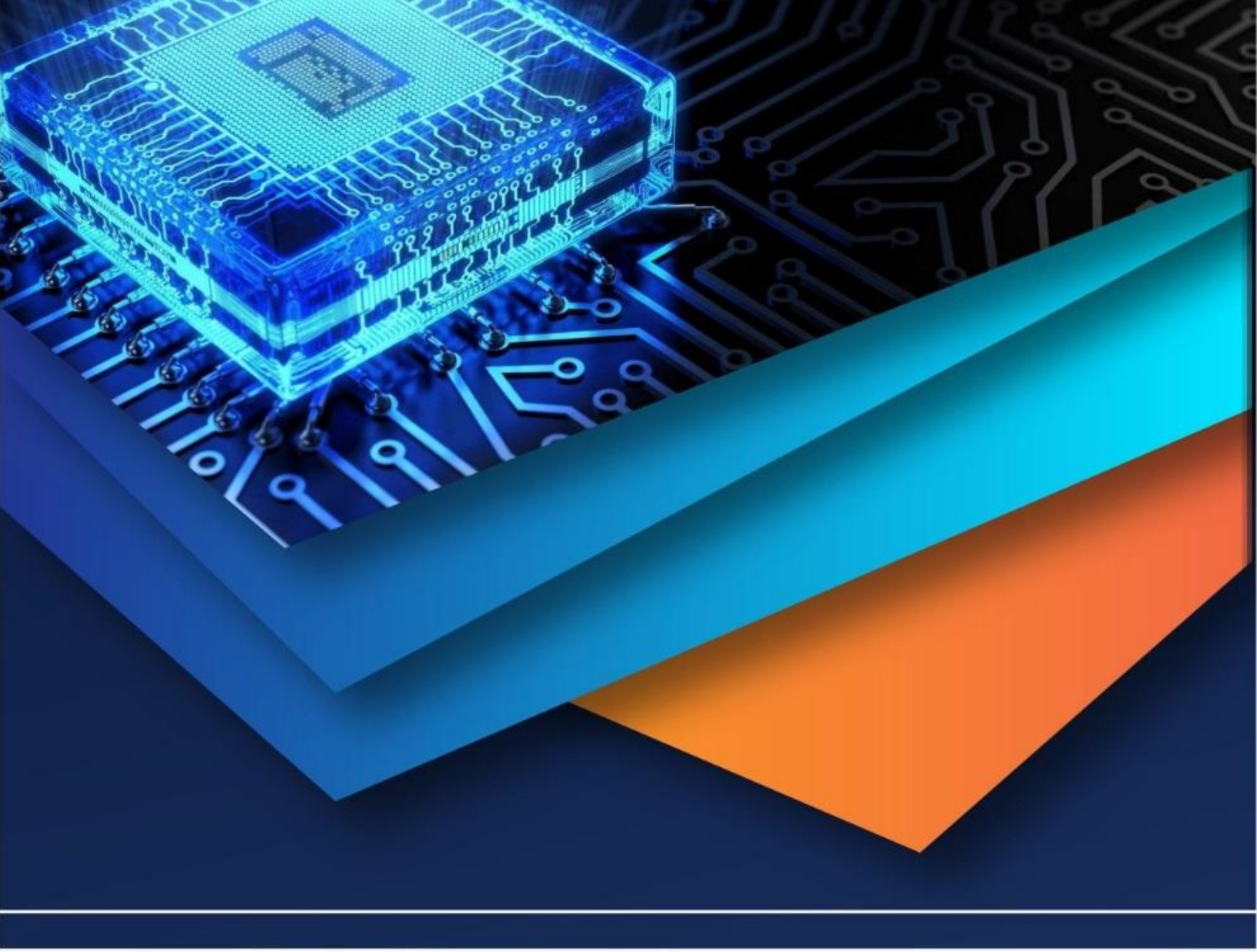
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