Introduction

A fuel gauge is an instrument used to indicate the level of fuel contained in a tank. Commonly used in most motor vehicles, these may also be used for any tank including underground storage tanks.

As used in vehicles, the gauge consists of two parts:
- The sensing unit
- The indicator

The sensing unit usually uses a float connected to a potentiometer. As the tank empties, the float drops and slides a moving contact along the resistor, increasing its resistance.

Meanwhile, the indicator unit (usually mounted on the dashboard) is measuring and displaying the Level.

The system can be fail-safe. If an electrical fault opens, the electrical circuit causes the indicator to show the tank as being empty (theoretically provoking the driver to refill the tank) rather than full.

Corrosion or wear of the potentiometer will provide erroneous readings of fuel level. However, this system has a potential risk associated with it. An electric current is sent through the variable resistor to which a float is connected, so that the value of resistance depends on the fuel level. In most automotive fuel gauges such resistors are on the inward side of the gauge, i.e., inside the fuel tank. Sending current through such a resistor has a fire hazard and an explosion risk associated with it.

Therefore, demand for another safer, non-contact method for fuel level is desired. So Let's Design a pressure sensor based Fuel Gauge.

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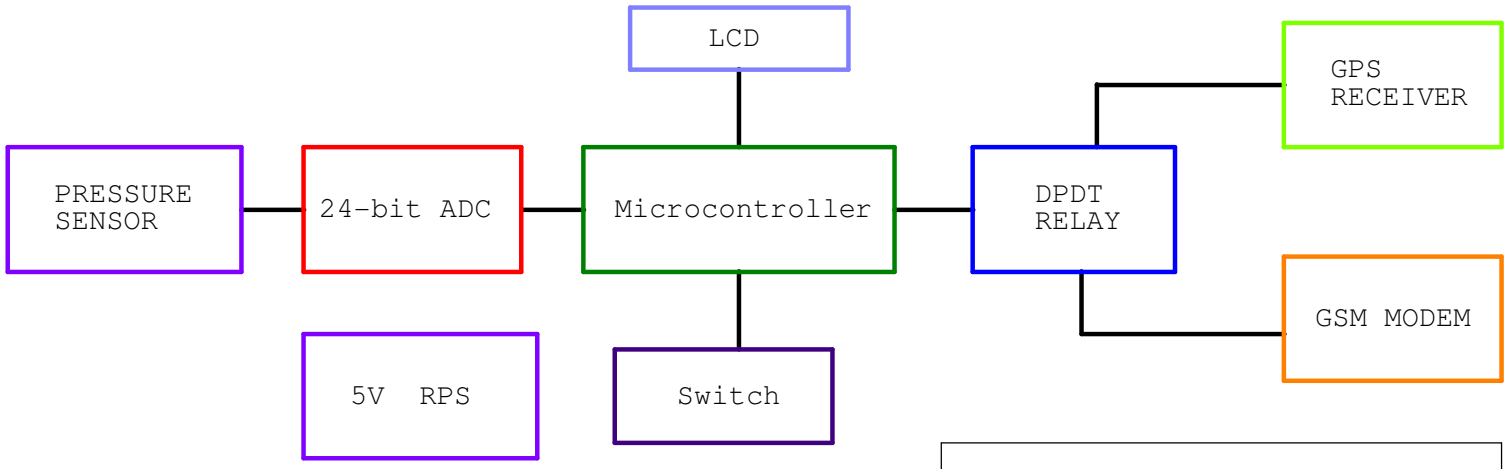
FUNCTIONAL BLOCK DIAGRAM



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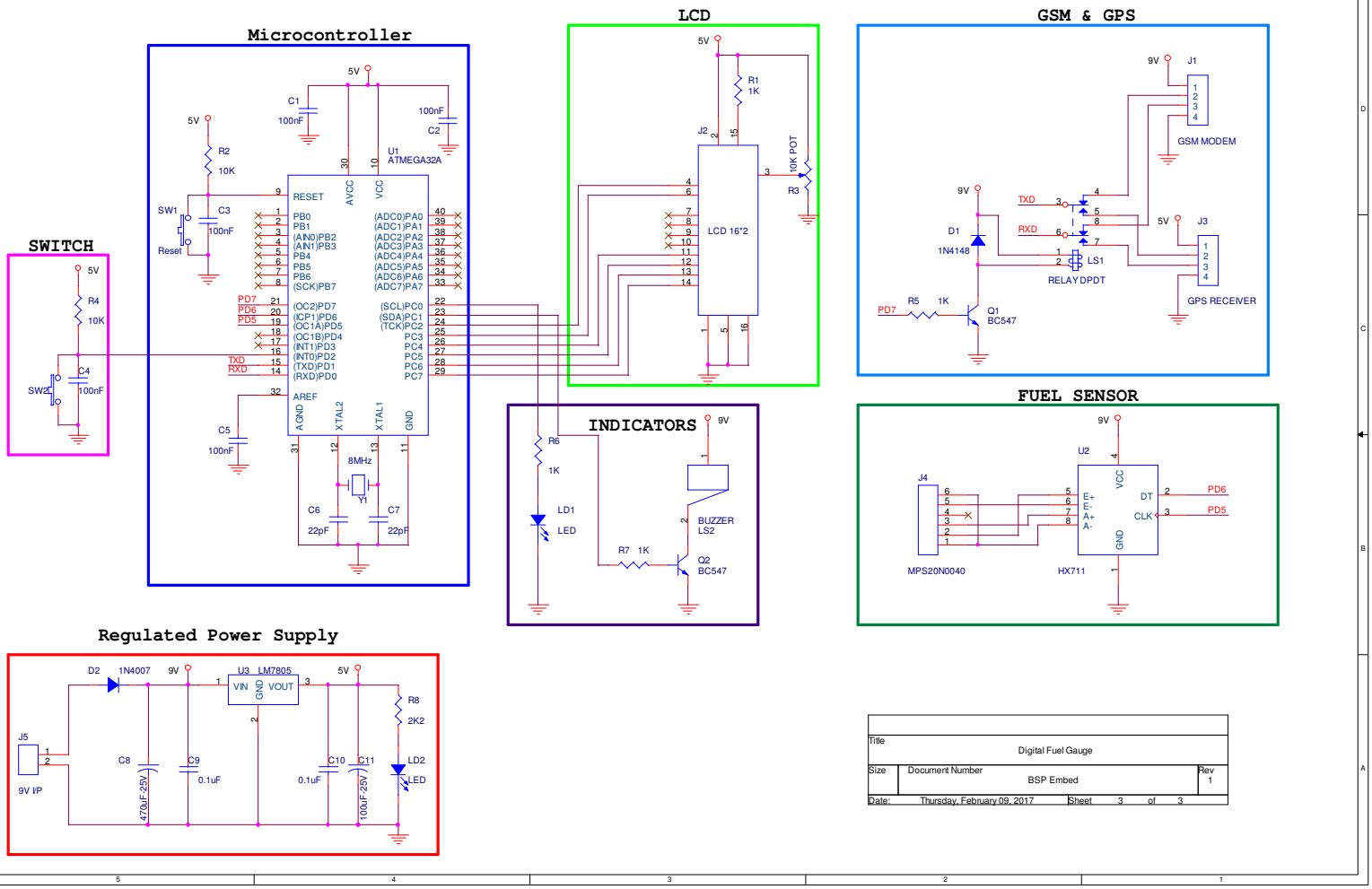
Microcontroller
U1
ATMEGA32A
RESET
PB0
PB1
PB4
PB5
PB6
PB7
PD7
PD6
PD5
PD4
PD3
PD2
PD1
PD0
PC3
PC4
PC5
PC6
PC7
AREF
AGND
XTAL2
XTAL1
GND
AVCC
VCC
8MHz
Y1
C1
C2
C3
C4
C5
C6
C7
R2
SW1
Reset
SWITCH
R4
SW2
LCD
LCD 16*2
R1
R3
10K POT
J2
INDICATORS
R6
LD1
LED
BUZZER
LS2
R7
Q2
BC547
GSM & GPS
J1
GSM MODEM
D1
1N4148
LS1
RELAY DPDT
J3
GPS RECEIVER
R5
Q1
BC547
FUEL SENSOR
U2
J4
MPS20N0040
HX711
E+
E-
A+
A-
DT
CLK
VCC
GND
Regulated Power Supply
D2
1N4007
U3 LM7805
VIN
VOUT
J5
9V I/P
C8
C9
C10
C11
R8
2K2
LD2
LED
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