Fuel Monitoring System

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Block Diagram

OUTPUT

INPUT

LCD Display

Load Cell

Water flow sensor

Micro Controller

Chapter 1:

ESP8266

* ESP8266 is a low-cost, Wi-Fi enabled microchip developed by the Chinese company Espressif Systems.
* It was introduced in 2014 and has gained popularity among electronics enthusiasts and developers due to its low cost and ease of use.
* The ESP8266 chip includes a 32-bit microcontroller, along with Wi-Fi capabilities, and is capable of connecting to the internet or other devices on a network.
* It is programmable and can be used in a variety of applications, such as home automation, IoT (Internet of Things) devices, and industrial control systems.

Main Features of ESP8266

* Wi-Fi connectivity: The ESP8266 can connect to Wi-Fi networks, allowing devices to access the internet.
* Low power consumption: The chip is designed to be energy-efficient, making it suitable for battery-powered devices.
* Microcontroller capabilities: The ESP8266 has a built-in microcontroller that can be programmed to perform a variety of functions.
* GPIO pins: The chip has several GPIO pins that can be used to control external devices.
* Integrated TCP/IP protocol stack: The ESP8266 includes a TCP/IP protocol stack, which enables it to communicate with other devices on a network.
* Small size: The chip is small in size, making it suitable for use in compact devices.

Chapter 2:

Water Flow Sensor

A water flow sensor is an electronic device used to measure the flow rate of water or other liquids. It is commonly used in a variety of applications, including water management systems, irrigation systems, and industrial processes.

Working Principle

The working principle of a water flow sensor is based on the fact that a flowing liquid generates a series of pulses, which can be detected and measured by the sensor. The sensor typically consists of a paddle wheel or turbine that rotates as the liquid flows through it. The rotation of the wheel generates a series of pulses that can be detected by a sensor or a magnetic switch.

The flow rate of the liquid can be determined by measuring the frequency of the pulses generated by the sensor. The frequency of the pulses is proportional to the flow rate of the liquid, with higher flow rates resulting in a higher frequency of pulses.

Water flow sensors can be used in both open and closed pipe systems. In an open pipe system, the sensor is inserted into the pipe and measures the flow of water as it passes through the pipe. In a closed pipe system, the sensor is attached to the outside of the pipe and measures the pressure changes in the pipe caused by the flow of water.

Overall, water flow sensors are an important tool for measuring and controlling the flow of water in a variety of applications, helping to ensure efficient use of resources and accurate monitoring of industrial processes.

Chapter 3:

Liquid Crystal Display

An LC display (Liquid Crystal Display) is a flat-panel display technology that uses liquid crystals to display images and text. It is commonly used in a variety of electronic devices, including calculators, digital clocks, televisions, computer monitors, and mobile devices such as smartphones and tablets.

Basic Working Principle

The basic working principle of an LC display is that the liquid crystals are sandwiched between two layers of polarizing filters. When a voltage is applied to the liquid crystals, they twist and untwist, allowing light to pass through the filters and create an image or text.

Advantages

* The advantages of LC displays include low power consumption, high contrast, and wide viewing angles.
* They are also relatively inexpensive to produce, making them a popular choice for a wide range of electronic devices.

LC displays are used in a variety of applications, including:

Consumer electronics: LC displays are used in a wide range of consumer electronics, including televisions, computer monitors, smartphones, and digital cameras.

Medical equipment: LC displays are used in medical equipment such as ultrasound machines, patient monitors, and blood glucose monitors.

Industrial equipment: LC displays are used in industrial equipment such as control panels, automation systems, and measurement instruments.

Automotive displays: LC displays are used in automotive displays such as dashboard displays, entertainment systems, and navigation systems.