

# WATER CLEANING ROBOT

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**Abstract :** Water could be a basic want for all living being, it's necessary to keep up the cleanliness and hygiene of water. Water gets impure thanks to several reasons like waste from business, garbage waste, waste matter waste etc. water from lakes and ponds area unit clean by ancient strategies. we've got to include technology specified cleanup work is completed expeditiously and effectively. we tend to take into account this as a heavy downside and begin to figure on the project

Mechanisms used for our style is such some way that it collects the waste that floats on water bodies and therefore the collected waste may be simply disposed from the merchandise, our product cleans wastes found like plastic wastes, garlands, bottles and alternative wastes found floating on water.

A clear vision concerning the extent of rejuvenation of water bodies is suggested. so as to create a productive use of restricted available resources, it's necessary to work out an appropriate level of restoration of lakes.

used elements like frame, waste collector bin

**IndexTerms - Component,formatting,style,styling,insert.**

## I. INTRODUCTION

Lakes area unit a vital feature of the Earth's landscape. they're very valuable ecosystems and supply a variety of products and services to human beings. they're not solely a big supply of precious water, however extend valuable habitats to plants and animals, moderate the hydrological extreme events (drought and floods), influence microclimate, enhance the aesthetic fantastic thing about the landscape and provide several recreational opportunities. Lakes have a really special significance in Republic of India.

A major value moving in-water vessels (surfaces) is that the value of fuel. Any reduction in fuel consumption can lead to an immediate and proportional reduction in in operation prices.

Since the bulk of its propulsive energy is required to beat fluid mechanics resistance (friction), for that reason keeping the external surface swish can minimise waste and improve the speed and/or distance to be gained from a similar quantity of fuel.

## II. PROBLEM STATEMENT

In the absence of electric pig facilities, the follow of merchandising garbage into close water bodies has become quite common in recent years. And has exhibit semipermanent negative impacts each on diversity of the world and furthermore as on the native atmosphere.

## III. EASE OF USE

1. **Collect many types of wastes:** - Our product shouldn't be restricted to gather only 1 type waste. It should diversify its perform to accomplish the given task. The mechanism created for to gathering wastes ought to be powerful enough to collect plastic wastes, plastic bottles, organic wastes that embody crop scrap, food wastes &any variety of wastes that is floating on water.
2. **Less human interference:** - The terribly basic plan ought to be glad that's to avoid the interference of the operator. this may happen solely by the adoption and sustained usage of technology within the space.
3. **Collect more amount of waste:** terribly first of all it should collect around 5kg of waste at a time once it's being left to the water.
4. **Easy disposal of waste:** Another necessary issue is straightforward removal of wastes that area unit collected within the aggregation box.
5. **It must be stable:** To create the merchandise stable it should get through with correct style calculations.It ought to face up to extreme conditions like further load exerted by the water waves and furthermore as by the wastes that area unit being collected.
6. **Safety for the user:** The merchandise should be user friendly.
7. **Environmental friendly:** It shouldn't damage the aquatic animals. It should not have any property that has adverse impact on the water supply

#### IV. REQUIREMENT OF HARDWARE

##### a) AVR MICROCONTROLLER:

The Atmel AVR® core combines a fashionable instruction set with thirty two general purpose operating registers. All the thirty two registers area unit directly connected to the Arithmetic Logic Unit (ALU), permitting 2 freelance registers to be accessed in a very single instruction dead in one clock cycle. The ensuing design is a lot of code economical whereas achieving throughputs up to 10 times quicker than standard CISC microcontrollers. ATmega16 is AN 8-bit high performance microcontroller of Atmel's Mega AVR family with low power consumption. Atmega16 is predicated on increased reduced instruction set computer (Reduced Instruction Set Computing, grasp a lot of about RISC and CISC Architecture) design with 131 powerful directions. Most of the directions execute in one machine cycle. Atmega16 will work on a most frequency of 16MHz. ATmega16 has sixteen KB programmable non-volatile storage, static RAM of one KB and EEPROM of 512 Bytes. The endurance cycle of non-volatile storage and EEPROM is ten,000 and one hundred,000, severally. ATmega16 could be a 40-pin microcontroller. There area unit thirty two I/O (input/output) lines that area unit divided into four 8-bit ports selected as opening, PORTB, PORTC and PORTD. ATmega16 has varied in-built peripherals like USART, ADC, Analog Comparator, SPI, JTAG etc. every I/O pin has an alternate task associated with in-built peripherals. the subsequent table shows the pin description of ATmega16.

##### Typical features of ATmega16:-

- 16 KB Flash memory
- 1 KB of SRAM
- Up to 16 MHz clock
- Four 8-bit I/O ports
- ADC, Timers, Serial Interface etc
- 40 pin DIP, operates at 5V

##### b)IR SENSOR :

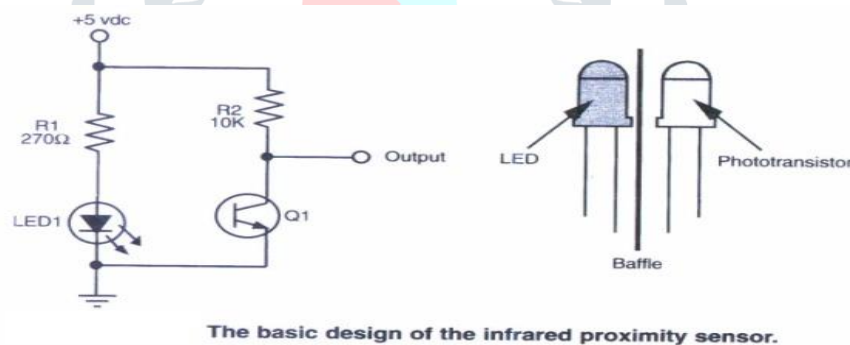


fig-1: ir sensor

##### Principle of operation of the I.R. L.E.D. and Phototransistor:-

A Photodiode could be a contact or p-i-n structure. once AN infrared gauge boson of spare energy strikes the diode, it excites AN lepton thereby making a mobile lepton and a charged lepton hole. If the absorption happens within the junction's depletion region, or one diffusion length faraway from it, these carriers area unit sweptback from the junction by the inbuilt field of the depletion region, manufacturing a photocurrent. Photodiodes may be used underneath either zero bias (photovoltaic mode) or reverse bias (photoconductive mode). Reverse bias induces solely very little current (known as saturation or back current) on its direction. however a a lot of necessary impact of reverse bias is widening of the depletion layer (therefore increasing the reaction volume) and strengthening the photocurrent once infrared falls thereon. there's a limit on the space between I.R. L.E.D. and infrared detector for the combine to work within the desired manner. In our case distance is regarding 5mm.

##### c) RELAY:



fig-2:relay

The Single Pole Double Throw SPDT relay is quite helpful in sure applications attributable to its internal configuration. it's one common terminal two and a couple of and a pair of contacts in 2 completely different configurations: one will be Normally Closed and the opposite one is opened or it will be Normally Open and the opposite one closed. thus essentially you'll see the SPDT relay as some way of switch between a pair of circuits:

when there's no voltage applied to the coil one circuit "receives" current, the opposite one doesn't and once the coil gets energized the alternative is occurring.

#### d) LCD DISPLAY:

LCD (Liquid Crystal Display) screen is AN electronic show module and realize a large vary of applications. A 16x2 {lcd|liquid crystal show|LCD|digital display|alphanumeric display} display is incredibly basic module and is incredibly ordinarily utilized in varied devices and circuits. These modules area unit most well-liked over seven segments and alternative multi segment LEDs. the explanations being: LCDs area unit economical; simply programmable; don't have any limitation of displaying special & even custom characters (unlike in seven segments), animations and thus on.

A sixteenx2 LCD means it will show 16 characters per line and there area unit a pair of such lines. during this alphanumeric display every character is displayed in 5x7 constituent matrix. This alphanumeric display has 2 registers, namely, Command and knowledge.

#### e) HC-05:

HC-05 module is a simple to use Bluetooth SPP (Serial Port Protocol) module, designed for clear wireless serial association setup. \Serial port Bluetooth module is absolutely qualified Bluetooth V2.0+EDR (Enhanced knowledge Rate) 3Mbps Modulation with complete a pair of.4GHz radio transceiver and baseband. It uses CSR Bluecore 04-External single chip Bluetooth system with CMOS technology and with AFH(Adaptive Frequency Hopping Feature). it's the footprint as little as twelve.7mmx27mm. Hope it'll change your overall design/development cycle

#### Hardware features:

- Typical -80dBm sensitivity .
- Up to +4dBm RF transmit power
- Low Power 1.8V Operation ,1.8 to 3.6V I/O .
- PIO management.
- UART interface with programmable baud rate.
- With integrated antenna.
- With edge connector .

#### f) GAS SENSOR:

A GAS detector or a GAS Detector could be a variety of chemical detector that detects/measures the concentration of gas in its neighborhood. Gas detector interacts with a gas to live in concentration. they're utilized in varied industries starting from drugs to part. varied technologies area unit} accustomed measure Gas concentration such as semiconductors, oxidation, catalytic, infrared, etc.

#### Applications:-

- Process control industries
- Environmental monitoring
- Boiler control
- Fire detection
- Alcohol breath tests
- Detection of harmful gases in mines
- Home safety
- Grading of agro-products like occasional and spices

**Features:-**

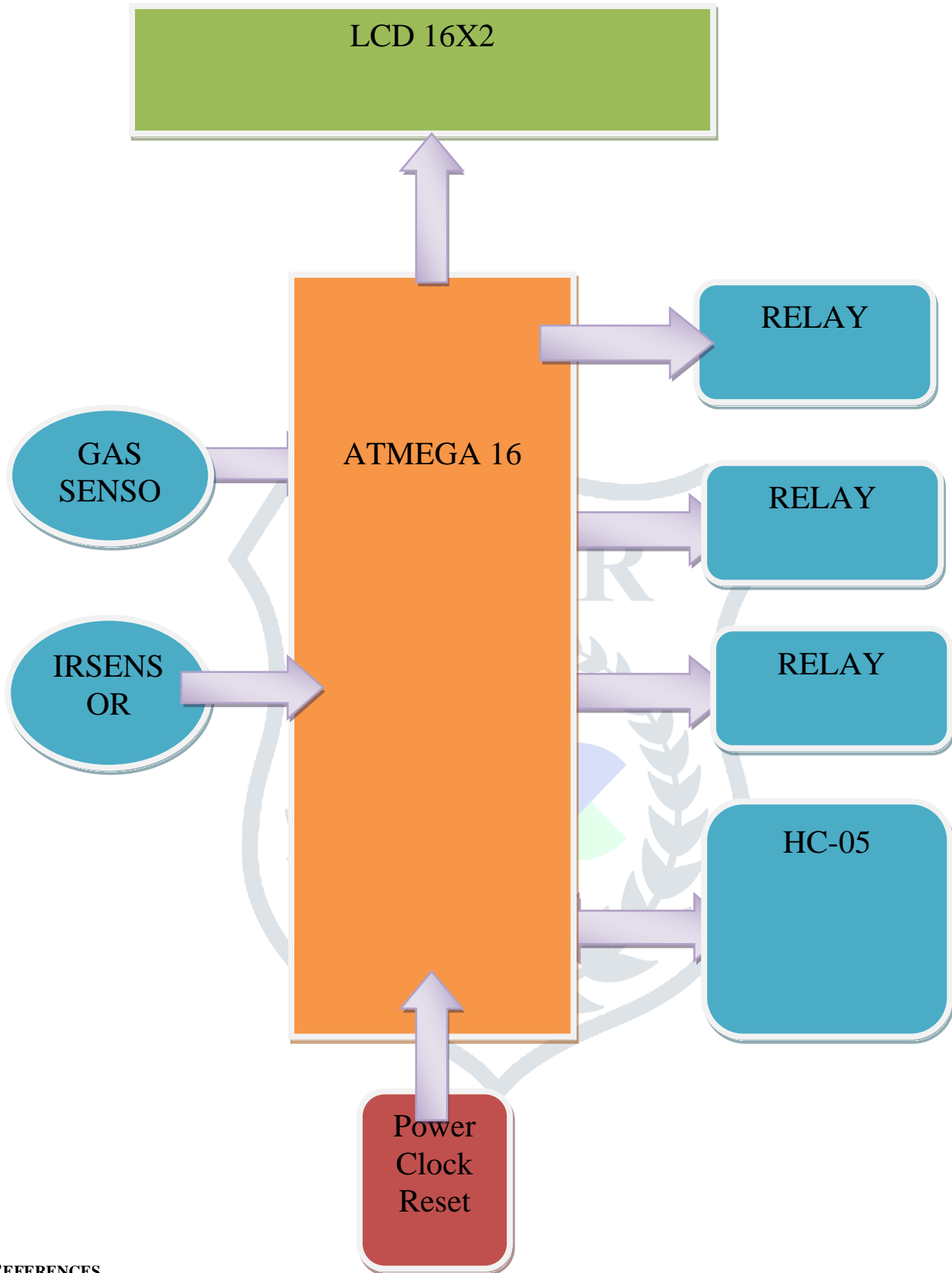
- High sensitivity
- Fast response
- Wide detection range
- Stable performance and long life
- Simple drive circuit



**fig-3:gas sensor**

V. BLOCK DIAGRAM:

VI.



VII. REFERENCES

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