**Controlled Fluid Flow without Controlling Pump Using Arduino :**

**Block Diagram:**

Arduino IDE Program

Water Flow Sensor

**Fluid Mechanics Formulation**

Water Quantity & Water Flow Rate

Arduino

UNO

LCD

Screen

Check (compare the actual flow rate with desire flow rate)



Water Pump

**Deliverables:**

1. Measuring the speed of the fluid.
2. Measuring the total quantity of fluid moved through.
3. Sending error signal to the motor to fill the main tank.
4. The Water Pump fills the tank up to the desired limit
5. Converting the speed to flow rate and Quantity (apply fluid mechanics).
6. Showing the required results on the LCD.

**Justifications:**

**Measuring the fluid (Our project focuses on liquid flow) flow rate (volume flow per unit time) is a very important factor in controlling a flow. Control flow means that the volume flow rate will be constant, or it will be according to our desire.**

* **This control flow factor is the backbone of sensitive chemical reactions (for their stoichiometry).**
* **In the Oil and Gas sector the flow rate of crude oil must be controlled before going to the fractional distillation.**
* **In fluid mechanics experiments and CFD analysis we assume the steady state condition and for that flow must be controlled.**
* **Water or Liquid Sodium is usually used as a coolant in nuclear reactors and their flow must be controlled otherwise nuclear blast will occur.**