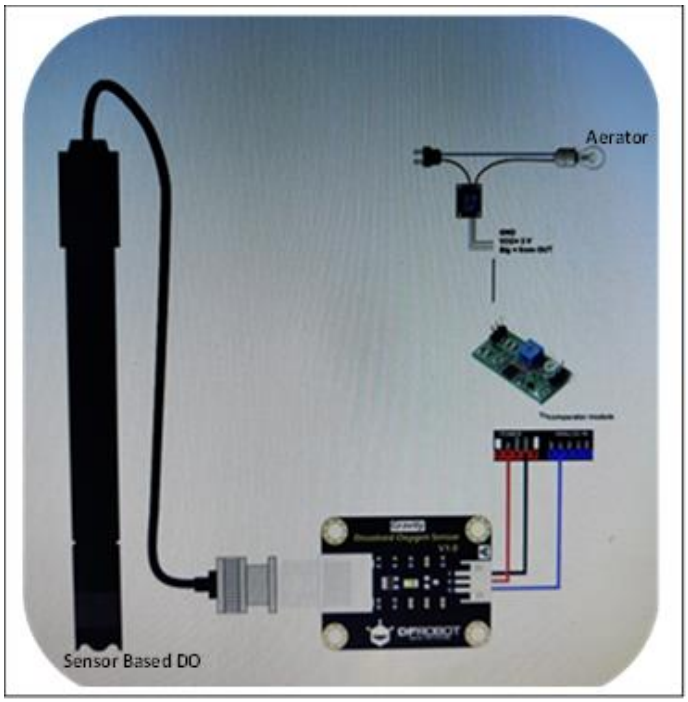
SENSOR BASED AUTOMATIC AERATION SYSTEM FOR AQUACULTURE

Sensor-based automatic aeration system consists of dissolved oxygen sensing probe, sensor, control unit, power supply unit, and an aerator. The DO probe is immersed in culture media of aquaculture system like pond, tank etc. The probe produces accurate DO readings even with organic buildup on the sensor. The controller has a built-in data logger that collects measurements at user selectable intervals (1 to 30 minutes).

The probe plug into controlling unit which continuously reads the DO values. In turn, the controlling unit sends signal to signal receiving unit as shown in the figure. The signals receiving unit is connected to power supply unit that supplies power to aerator so that the aerator starts functioning.

When DO reading falls below the optimum value (say 5 mg/L), the control unit senses the oxygen depletion and sends signal to signal-receiving unit which in turn enables power supply unit to supply power to the aerator. Upon receiving the power supply, the aerator starts supplying oxygen into water. When dissolved oxygen level rises above the optimum value, the controlling unit senses the same and sends signals so that aerator stops functioning.

Thus, the aeration system functions automatically in accordance with fluctuations (above or below the optimum value) in dissolved oxygen concentration in the culture media of the aquaculture system.