**Experiment Code Documentation**

**Introduction**

This document captures the experiment implementation details.

**Code Details**

**File Name :**Check.js

**File Description :** it has event related to “ show parameters” checkbox

**Function :**checkbox()

**Function Description :** it have a condition to evaluate checkbox “show parameter” every time onlick and display available feilds , otherwise none.Update values on input feilds.

**Function :**show()

**Function Description :**show() is a event onclick for button ”show”(visible when “show parameters” is checked).

It will display input values and calculate ,display output values.

Will call add\_element\_to\_array() and display\_array().

**Function :**add\_element\_to\_array()

**Function Description :** add calculated values to arr(array) and update in localstorage

**Function :**display\_array().

**Function Description :** Display stored values in arr(array)-”observation table”

**File Name :**Check2.js

**File Description :** it has event related to “ show graph” checkbox

**Function :**checkbox2()

**Function Description :**checkbox2() have a condition to evaluate checkbox “show graph” every time onlick and display graph with updated values

**File Name :**experiment.js

**File Description :** it has canvas for objects like hydralic bench,vernier scale,sump,weirs.

**Function :** experiment()

**Function Description :** The function will draw hydralic bench for simulation using canvas.

**Function :** vernierWithScale()

**Function Description :** The function will draw vernier scale which has gauge with hook for measuring purpose.

**Function :** drawBaffel()

**Function Description :** The function will draw baffel which is rectangular in shape.

**Function :** drawCylinder()

**Function Description :**drawCylinder(cy, x, y, w, h) has arguments context variable,start point w.r.t to x-axis ,y-axis and width,height of object

its functionality to print cylinder shape to represent the sump.

**File Name :**graph.js

**File Description :** it loaded on popup window onclick “view full graph”.

**Function :** viewChart().

**Function Description :**viewchart() will access data in localstorage(set in check.js) to print the datapoints .

**File Name :**next.js

**File Description :** its has events onclick of button “next”.

**Function :** next()

**Function Description :**next() is called on every on click of button”next”

it has a switch case which will direct the onclick respectively every time

**Function :**displayWater()

**Function Description :**displayWater() is a function to reflect the water in the sump has water in it.

**Function :**complete().

**Function Description :**complete() is a function to alert that the experiment is completed and disable “next” button.

**File Name :**water.js

**File Description :** Its has funtions for simulation to display flowing water.

**Function :**drawFlow()

**Function Description :**drawFlow() will display waterflow in hydralic bench.

**Function :**drawCylWater()

**Function Description :**drawCylWater()will display waterflow in cylinder shaped container .

**Function :**drawFlowWater()

**Function Description :** drawFlowWater()will display waterflow from hydralic bench to cylinder shaped container.

**Function :**animatePathDrawing()

**Function Description :** animatePathDrawing()will animate path waterflow from hydralic bench to cylinder shaped container.

**File Name :**weirs.js

**File Description :** Its has events for simulation with timeout.

**Function :**display\_Vweir()

**Function Description :**display\_Vweir() will display simulation for the v notch weir(with setTimeout()) and set time for display\_Rweir().

**Function :**display\_Rweir()

**Function Description :** display\_Rweir() will display simulation for the rectangular notch weir (with setTimeout()) and set time for display\_Eweir().

**Function :**display\_Eweir()

**Function Description :**display\_Eweir() will display simulation for the edge notch weir.

**Function :**observeReadings()

**Function Description :**observeReadings() will display note below which has instructions to be followed further.

**Other details:**

**Formulas used in the Experiment**

1. Final training dataset made would be of this type dataArray =

[[qv0,H0],[qv1,H1],[qv2,H2]]

2. Initially the all vector is assigned [0, 0].

3. There are four inputs values (height-h,length-l,cofficient of discharge-cd,area-a) . The equations used is

q=(1.71\*cd\*l\*(h^(3/2))

v=q/a

hv=v^2/2\*g

g is 9.8

H=h+hv

qv=1.71\*cd\*l(H^(3/2)-hv^(3/2))

4. Now the final quntitity of discharge are displayed under ‘qv’. The final

perceptron line is drawn using the following:

qv(q value with velocity) and H(Height)