Comtel Consultants & Infraprojects Pvt Ltd

oT Based Dam Gate Anomaly Monitoring And Detection Along With Water Usage Optimizatio

Submitted by : ***TEAM 05***

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LITERATURE REVIEW

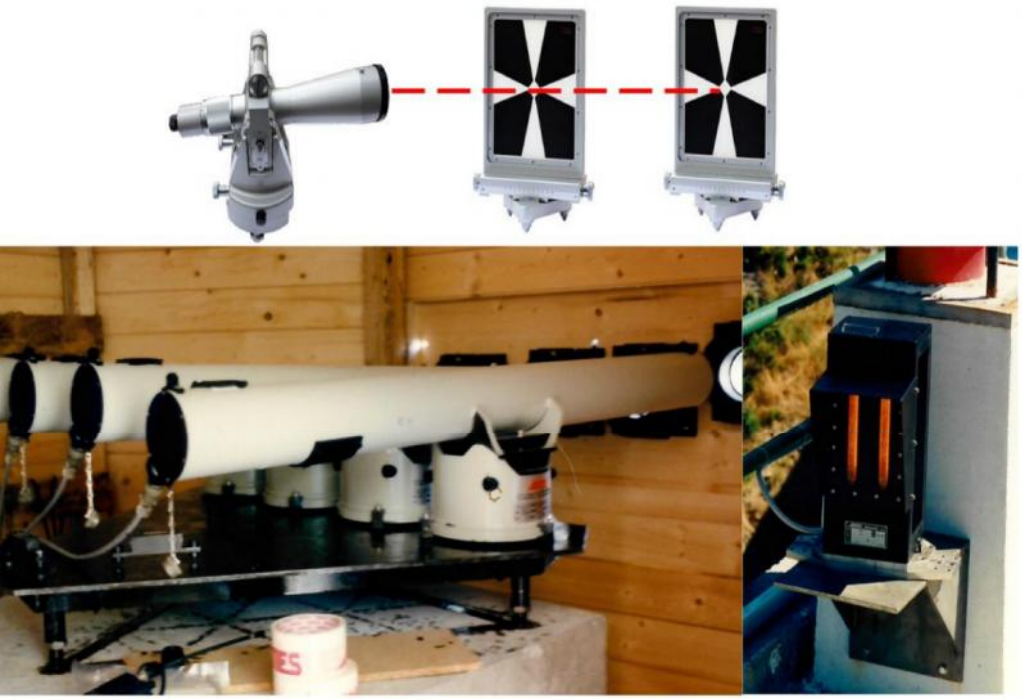


Fig.1: REMOTE SENSING SENSORS*

Fig.2: DRONE MONITORING SYSTEM*

*Source: Pictures collected from Google

PROBLEMS FORMULATION

Fig.3(a): GATE DAMAGE

Fig.3(b): WATER SHORTAGE

Fig.3(c): DOWN STREAM FLOOD

Fig.3: DURGAPUR BARRAGE GATE DAMAGE INCIDENT, NOV 2020

Fig.4: WATER OVERFLOW

Fig.5: LONG TIME GAP BETWEEN INCIDENT AND ACTION TA

PATENT REVIEW

NT NO;YEAR	INVENTOR	DESCRIPTION
05177153U; 2016	Xiamen Huaxia University	• Fibre, satellite, power bus communication. • Information management switchboard. • MCU, CCU based early warning system
01177679Y; 2008	Zhou Zhengxian	• Optical fibre based layered sensing cable. • Notify cracks beforehand. • Cannot control other dams simultaneously.
19533041A1; 2008	Tooni Hara Kenichi Kobori	• Crack inspection device for a concrete structure • storing rastar data , • A data synthesizing unit matches and synthesizes the vector d of the crack
104906A; 1977	Donald H. Oertle	• Early crack detection in non-permeable surfaces. • Operate under various pressures. • Non intelligent system.
145915A; 1977	Donald H.Oertle, Marvin L. Peterson	• Early crack detection in non-permeable surfaces. • Non intelligent system.

Table.1: PATENT SURVEY

WORKING PRINCIPLE

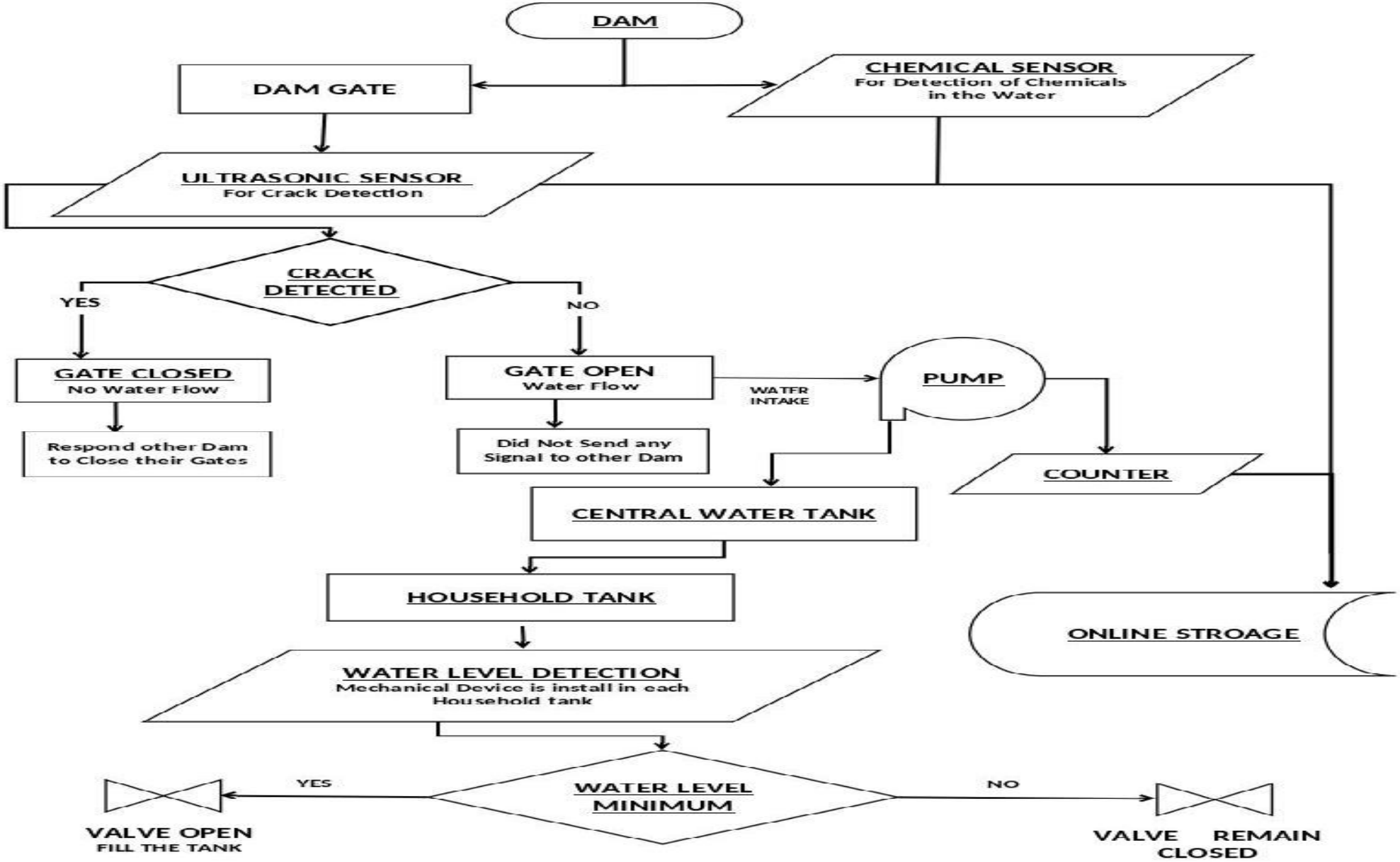
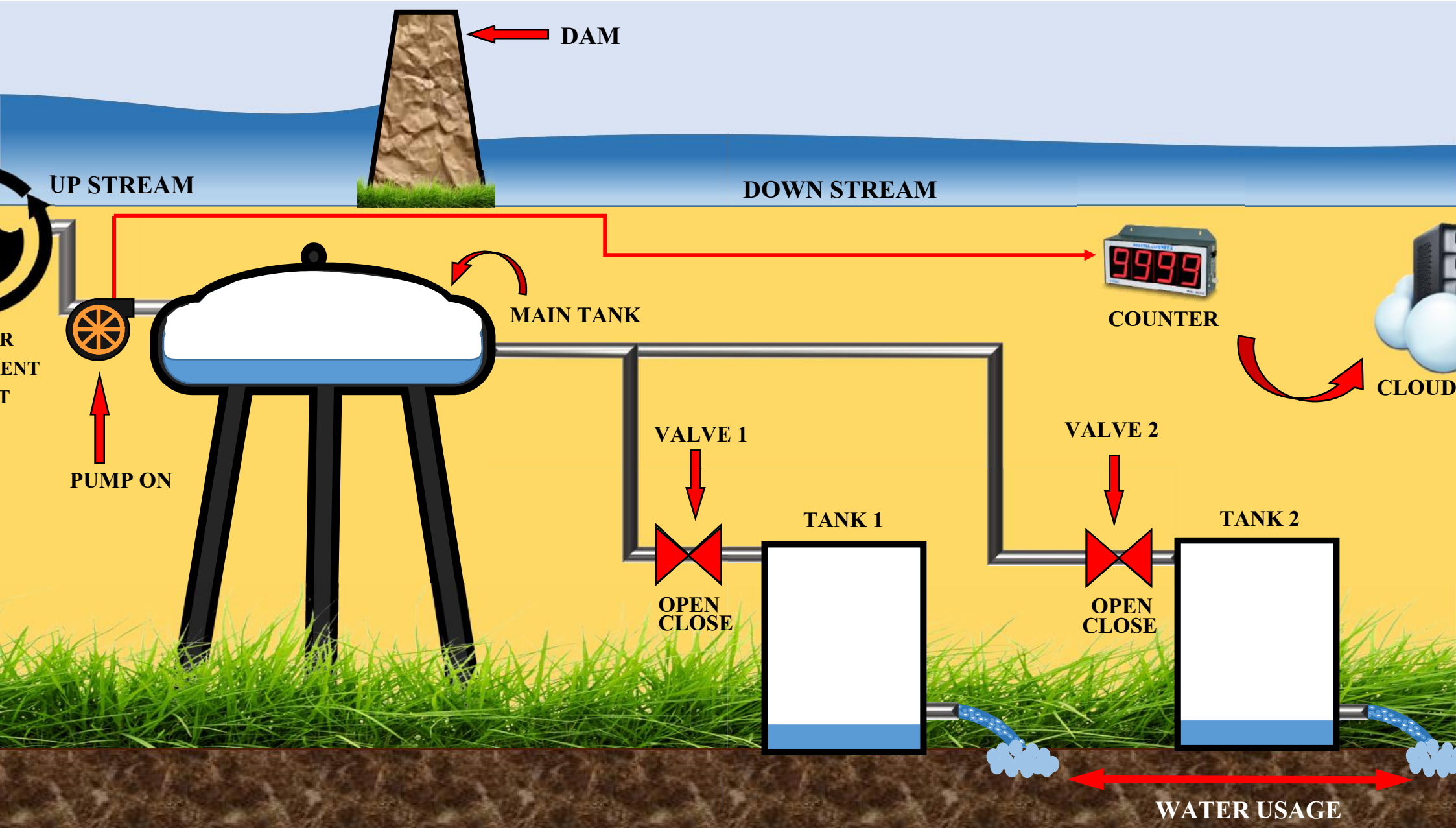


Fig.6: ANOMALY MONITORING FLOWCHART

PLACEMENT OF SENSOR ARRAY

Animation.1: WALK SHOWING PLACEMENT OF SENSOR ARRAY

*Note: Please play the animation



Animation.2: ANIMATION SHOWING WATER USAGE CONTROL AND DATA COLLECTION

ase play the animation in full screen mode

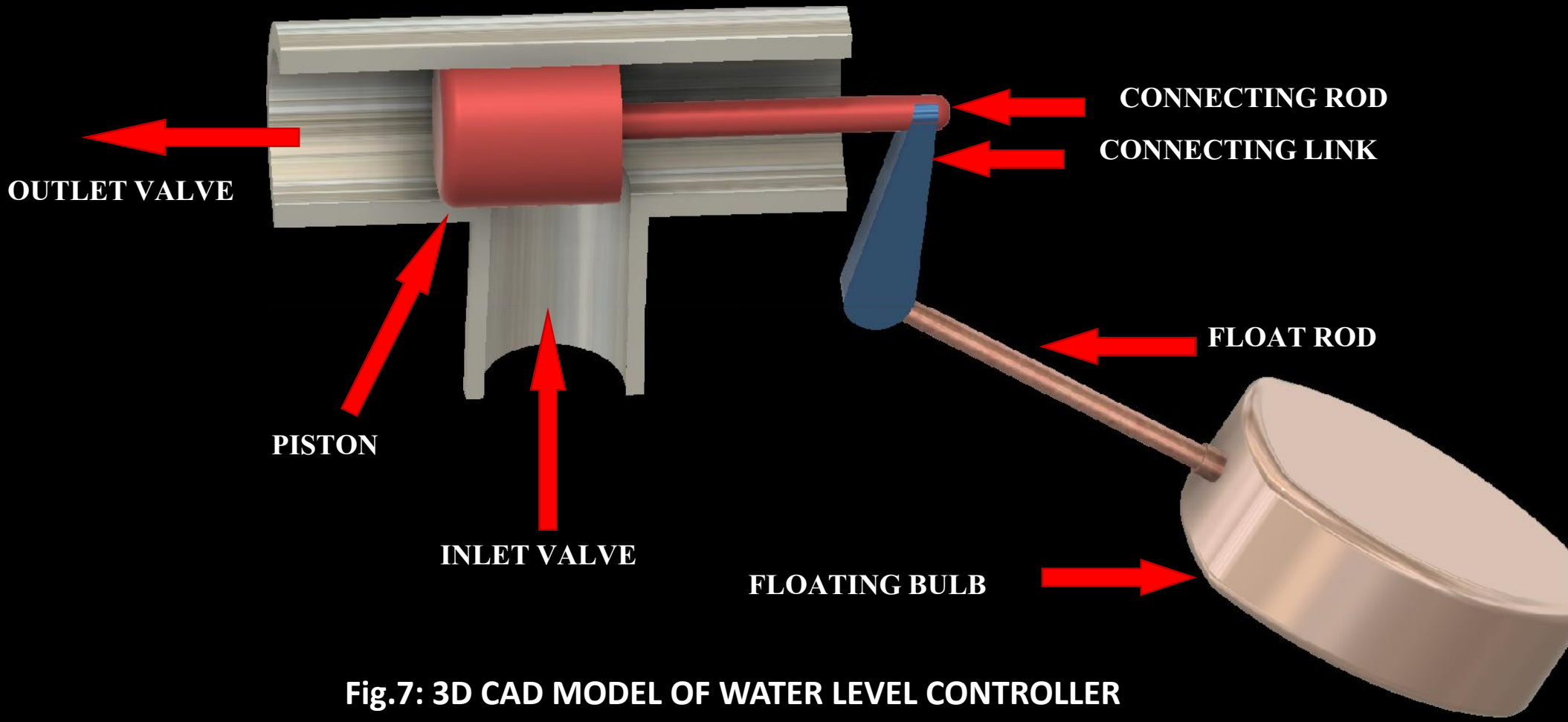
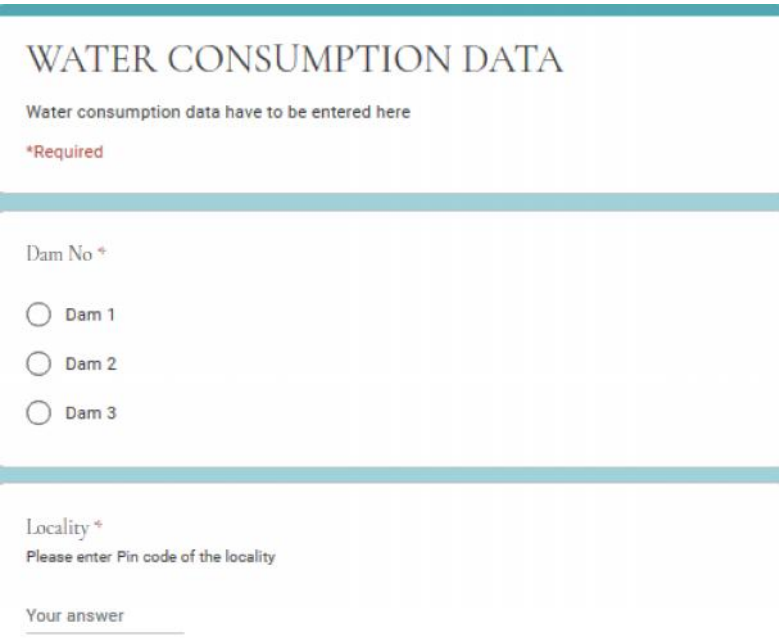


Fig.7: 3D CAD MODEL OF WATER LEVEL CONTROLLER

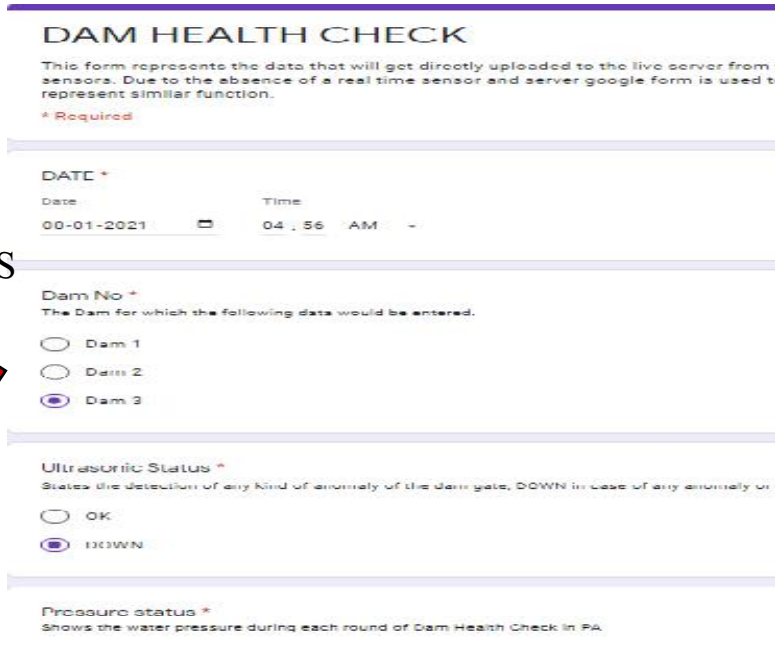
IoT BASED DAM OPERATION CONTROL

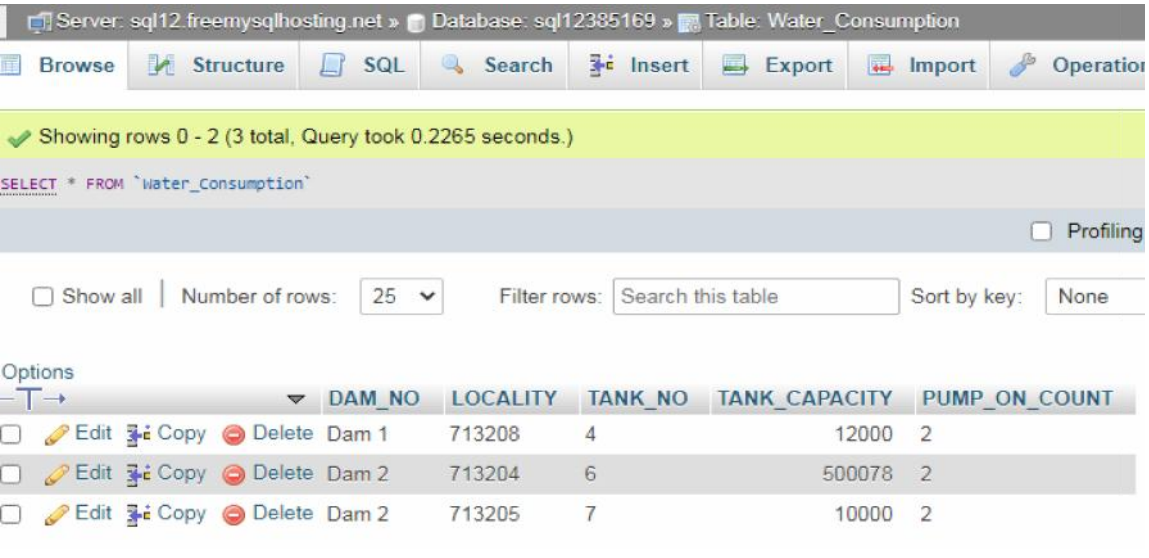
Fig.8: IoT BASED CONTROL OF DAM GATE OPERATIONS

RESULTS



ON SUBMISSION OF GOOGLE FORMS DATA GETS AUTO UPDATED ON LIVE SERVER





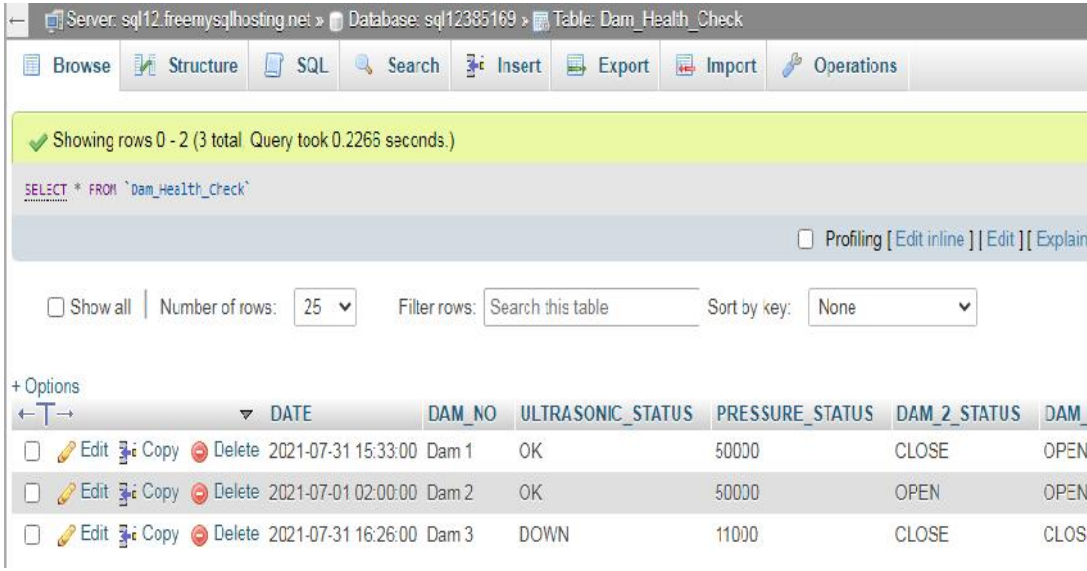


Fig.9: AUTO UPDATION OF LIVE SQL SERVER DATABASE

WORK DONE SO FAR

- Database created and hosted on a local server.
- Respective tables have been created within the same database.
- Google forms created and stored on Google cloud.
  - Google form for water consumption link : https://forms.gle/ffamSgVcS1kh98986
  - Google form for dam health check link : https://forms.gle/MDi4nhZEQ2rLaHXP9
- Testing of the data acquisition using a live server is successful.

WORK YET TO BE DONE

- Program for regular monitoring to be written and included as cron job.
- Real time data collection using sensor and uploading that to the server.
- Real time implementation and testing of the complete system together.

REFERENCES

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THANK YOU

FOR YOUR KIND ATTENTION