American International University – Bangladesh (AIUB)
Faculty of Engineering
Department of CSE, EEE, and CoE

EEE3102 Digital Logic and Circuits LAB
PROJECT PROPOSAL FORM

SEMESTER: Fall 2023-2024
PROJECT TITLE: 2 MARKS (must be related to digital logic and circuits. Both hardware implementation and simulation must be shown by the end of the semester. However, the proposal form should be submitted within the next two weeks from now on.)
Survey to develop a process for complex engineering problems with a wide range of conflicting requirements (use pie chart): 5 MARKS
AIMS AND OBJECTIVES OF THE PROJECT: 3 MARKS
EXPERIMENTAL BLOCK DIAGRAM: 4 MARKS
PROJECT TIMELINE (GANTT CHART): 4 MARKS
REFERENCES: (only published paper-based references are allowed with the IEEE format, don't use you-tube, Wikipedia, or any random website for references): 2 marks **Sample for the conference paper:** [1] M. H. Bhuyan and Q. D. M. Khosru, "Linear Asymmetric Pocket Profile Based Pinch Off Voltage Model for Nano Scale n-MOSFET," Proceedings of the IEEE sponsored International Conference on Electrical, Computer and Communication Engineering (ICECCE2017), organized by the Chittagong University of Engineering and Technology (CUET), Cox's Bazar, Bangladesh, 16-18 February 2017, pp. 28-32.

FACULTY USE ONLY

COMMENTS BY THE <u>COURSE TEACHER:</u>

COURSE TEACHER'S NAME   COURSE TEACHER'S SIGNATURE   DATE

GROUP MEMBERS

(Maximum <mark>6 students</mark> are permitted to carry out a single Project. However, depending on the capability of the students, <mark>4 students</mark> may be allowed but not less than that)

NAME: <u>MD. SHOHANUR RAHMAN SHOHAN</u> **ID**: <u>22-46013-1</u> **PROGRAM: CSE** **EMAIL:** <u>22-46013-1@student.aiub.edu</u>	**NAME**: <u>RUDRA SHINE DATTA</u> **ID**: <u>22-46723-1</u> **PROGRAM: CSE** **EMAIL:** <u>22-4723-1@student.aiub.edu</u>
NAME: <u>A. H. M. TANVIR</u> **ID**: <u>22-47034-1</u> **PROGRAM: CSE** **EMAIL:** <u>22-47034-1@student.aiub.edu</u>	**NAME**: <u>ABIR BOKHTIAR</u> **ID:** <u>22-47038-1</u> **PROGRAM: CSE** **EMAIL:** 22-47038-1@student.aiub.edu
NAME: <u>A. F. M. RAFIUL HASSAN</u> **ID:** <u>22-47048-1</u> **PROGRAM: CSE** **EMAIL:** <u>22-47048-1@student.aiub.edu</u>	**NAME**: ………………………………………………… **ID**……………………………… **PROGRAM:** EEE/COE/CSE **EMAIL:**
REMARKS (for OFFICE use only)	

Course Outcome Mapping with the Course Project Proposal:

COs/CLOs	Details	K	P	A	Assessed Program Outcome Indicator	BNQF Indicator	Assessment Techniques
CO1	Apply proper information and concepts of different logic gates, digital ICs, transistors, and timers to implement logical circuits considering a wide range of conflicting requirements.	K3	P1, P2, P6		P.a.3.C3	FS.1	Course Project Proposal Form

Course Name:	Digital Logic and Circuits Lab	**Course Code:**	EEE 3102
Semester:	Fall 2023-2024	**Section:**	L
Faculty Member:	NUZAT NUARY ALAM		

Course Project Title:	WATER LEVEL INDICATOR WITH ALARM USING LOGIC GATES
Project Group No.	06

SL	Student ID #	Student Name	Obtained Marks
1.	22-46013-1	MD. SHOHANUR RAHMAN SHOHAN	
2.	22-46723-1	RUDRA SHINE DATTA	
3.	22-47034-1	A. H. M. TANVIR	
4.	22-47038-1	ABIR BOKHTIAR	
5.	22-47048-1	A. F. M. RAFIUL HASSAN	

Assessment Materials and Marks Allocation:

COs	Assessment Materials	POIs	Marks
CO1	Course Project Proposal form	**P.a.3.C3**	20

Assessment Rubrics

COs-POIs	Excellent [17-20]	Proficient [13-16]	Good [9-12]	Acceptable [5-8]	Unacceptable [1-4]	No Response [0]	Secured Marks
CO1 P.a.3.C3	The survey developed as a process for complex engineering problems considering a wide range of conflicting requirements and implementation process is clear and challenging for future project implementation.	The survey developed as a process for complex engineering problems considering a wide range of conflicting requirements but the conflicting requirements are less in number and implementation process is clear and challenging for future project implementation.	The survey developed as a process for complex engineering problems considering a wide range of conflicting requirements but the conflicting requirements are less in number and implementation process is not so clear but seems challenging for future project implementation.	The survey developed as a process for complex engineering problems considering a wide range of conflicting requirements but the conflicting requirements are fewer in number and implementation process is not so clear and seems less challenging for future project implementation.	The survey developed as a process for complex engineering problems considering a wide range of conflicting requirements but the conflicting requirements are very few in number and implementation process is not clear at all and seems impractical for future project implementation.	No Response	
Comments						**Total marks (20)**	

© Department of EEE, Faculty of Engineering, American International University – Bangladesh (AIUB)

PROJECT TITLE: WATER LEVEL INDICATOR WITH ALARM USING LOGIC GATES

INTRODUCTION:

A water level indicator with an alarm project is a practical and cost-effective solution for monitoring and maintaining water levels in various applications. It ensures the efficient use of water resources, prevents damage, and provides peace of mind by alerting users to potential issues in a timely manner. The core components of this system include water level sensors, basic logic gates (And /Or/Not), and an alarm mechanism. The water level sensors are strategically placed inside the tank at different height levels, and they generate signals based on the water's height. These signals are processed by the basic logic gates, which are programmed to interpret the data and trigger the alarm when the water level reaches predefined thresholds.

Consequently, automatic control involves designing a control system to function with minimal or no human interference. The idea can be implicitly used to ascertain and control the level of water in overhead tanks and prevent wastage. In this Arduino based automatic water level indicator and controller project, the water level is being measured by using ultrasonic sensors.

AIMS AND OBJECTIVES OF THE PROJECT:

The primary objective of this project is to design and implement a water level indicator using logic gates. Specific objectives include:

1. To learn the working of a water indicator.
2. Measure the water level when the circuits indicate when the tank is half and full.
3. To learn how to build simple circuits.
4. To check the level of water in the tank. Depending on the water level, the motor switches ON when the water level goes below a predetermined level or the motor switches OFF when the tank is full.

5. To display the water level and other important data on a 7-Segment Display.

LITERATURE REVIEW:

[1]In this paper we can old concept with adaptive technology. They have used water level sensor which works on the principle of electrical conducting property of water. LED's are used to indicate water level and Relay is used for monitoring of motor.

[2] This paper is used to make the automatic water level monitoring .the main aim of this project is to sense the level of the water in bucket and the tap turns on and off according to the condition and display it on the screen.

[3] This project checks the water level and uses a pump to switch off the water supply as and when required. It mainly focuses on minimizing the man power and reducing time wastage.

[4]This paper deals with the same concept of checking the water level. The motor turns ON or OFF depending on the amount in the tank.

[5] This paper has an implemented Automatic water level control system consisting of arduino to automate the process of water pumping in a tank and has the ability to detect the level of water in a tank and switches ON or OFF the pump accordingly and displays the status on the LCD screen. The system also monitors the level of water in the sump tank (source tank). If the level inside the sump tank is low, the pump will not be switched ON and this protects the motor from dry running. A beep sound is generated when the level in the sump tank is low or if there is any fault with the sensors.

[6] This paper deals with the process of development of a system for automation of fossil fuel pump for filling a container .Basically the author is working on petrol level indicator which has an automated audio alert system. With the help of magnetic sensors the author has come up with a unique application .Water level controllers are not appropriate in this project due to the direct contact of liquid with the electrodes. The concept is very much similar to water level indicator project but defined in different fashion.
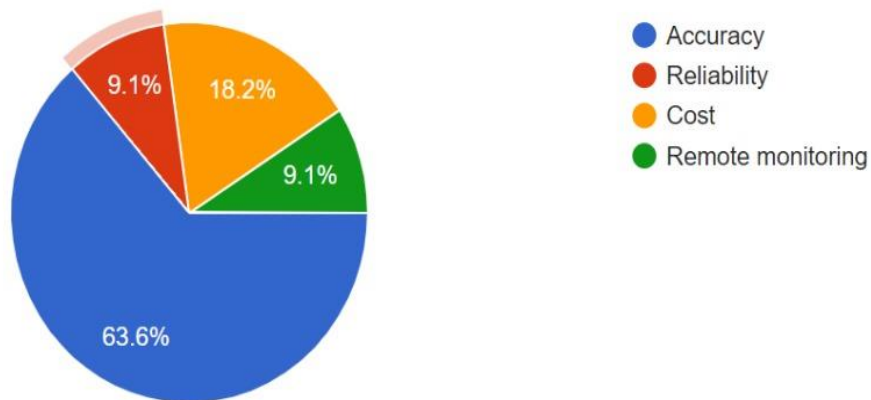
SURVEY:

How often do you require water level monitoring in your application (e.g., daily, weekly, monthly)?
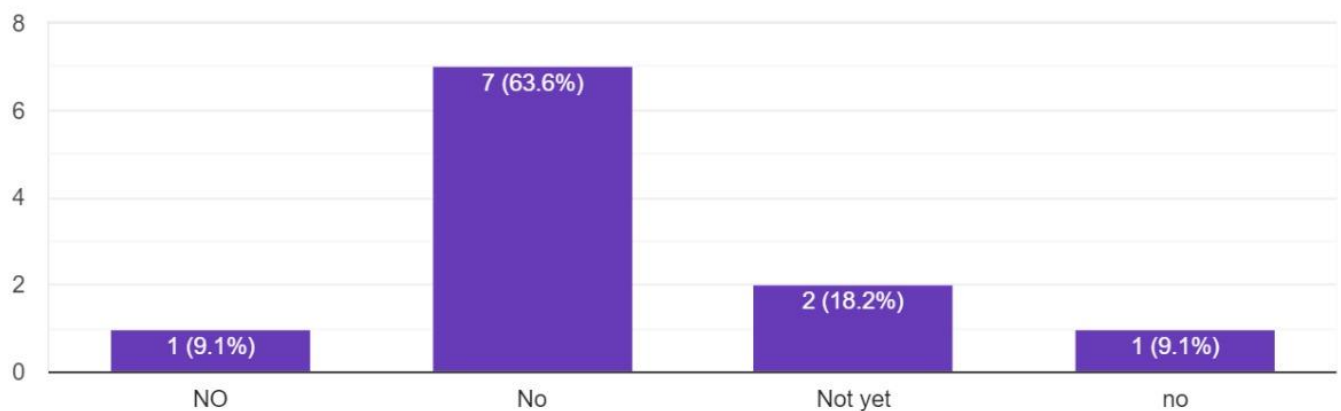
11 responses
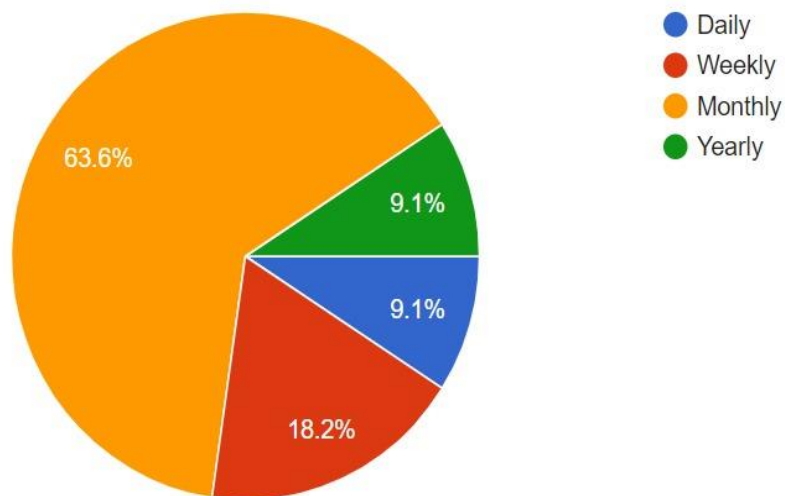
Which features are most important to you when choosing a water level indicator (e.g., accuracy, reliability, cost, ease of installation, remote monitoring capabilities)?
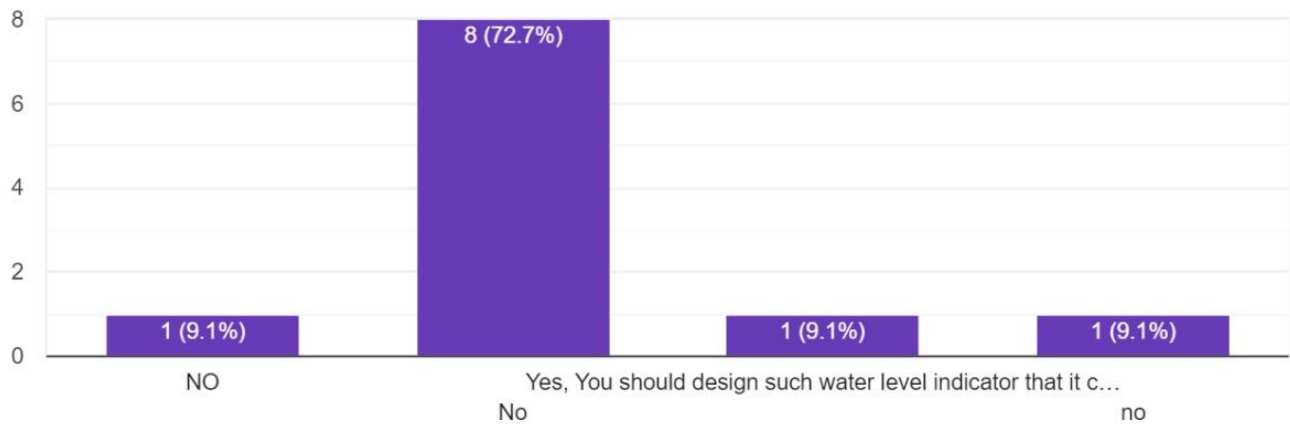
11 responses

- Accuracy
- Reliability
- Cost
- Remote monitoring

9.1%   18.2%   9.1%   63.6%

Have you used any specific water level detection systems or brands in the past? If so, please specify.
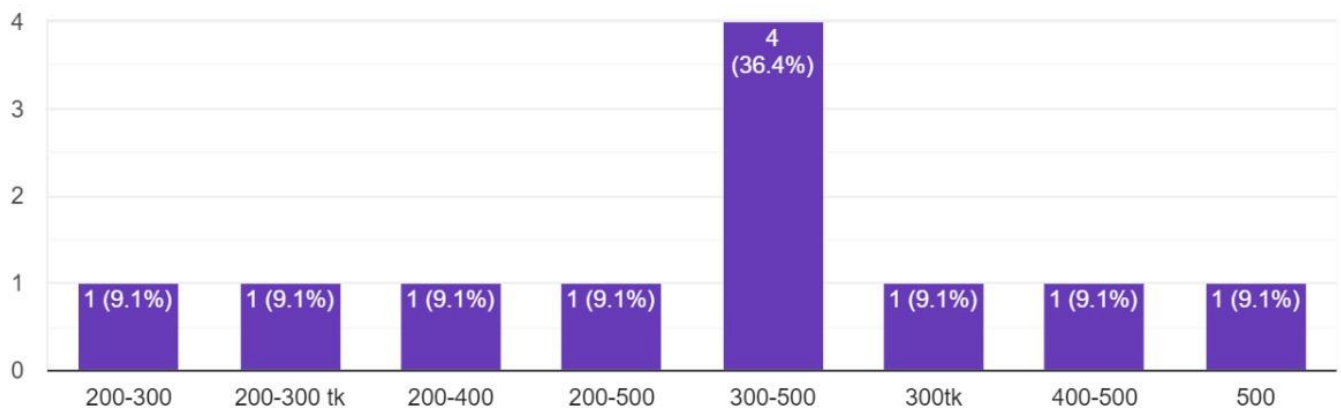
11 responses

1 (9.1%)   NO
7 (63.6%) No
2 (18.2%) Not yet
1 (9.1%)   no

Are there any additional features or capabilities you would like to see in a water level indicator that are not commonly available?

11 responses

What is the budget range do you think is suitable for water level monitoring system?
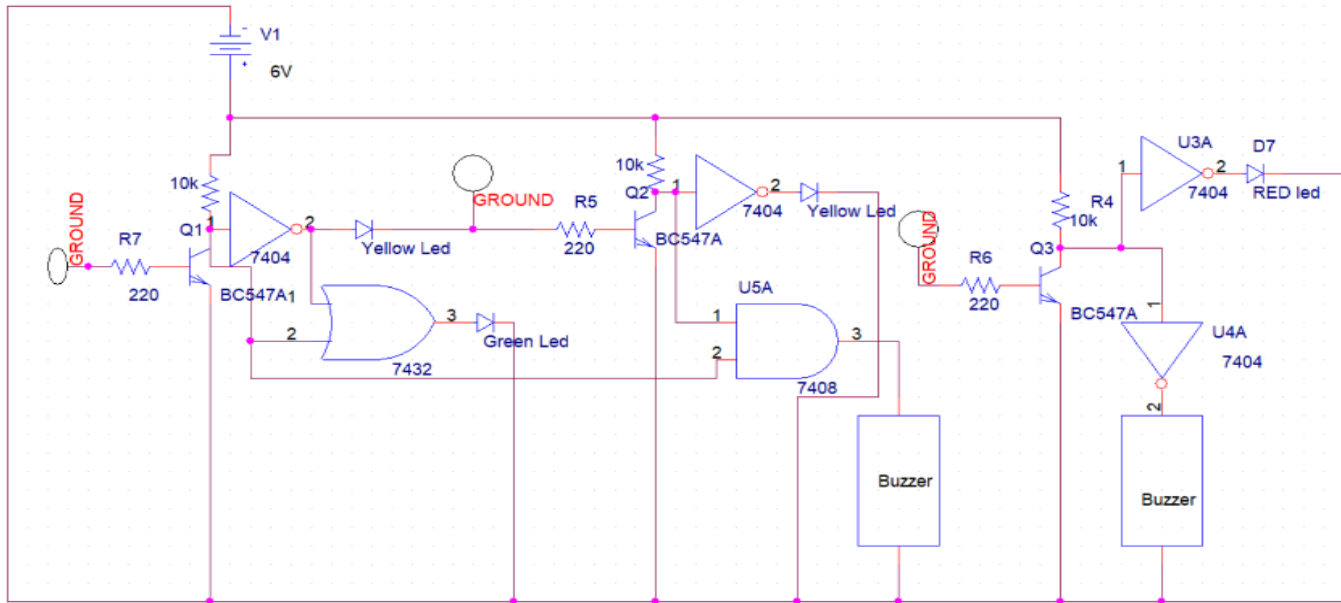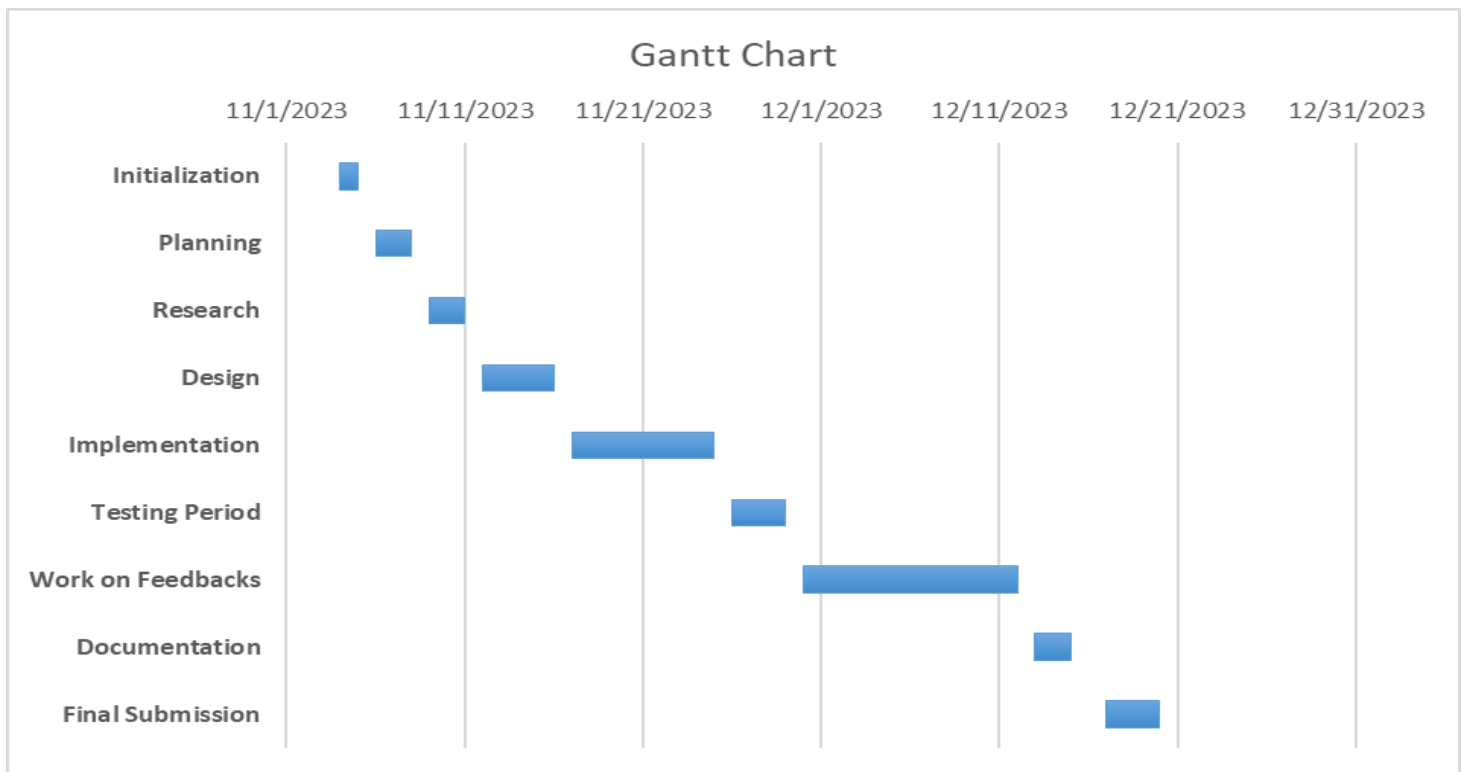
11 responses

EXPERIMENTAL BLOCK DIAGRAM:

Fig-1: Water level indicator circuit diagram.

GANTT CHART:

REFERENCES:

[1] Tarun Naruka, Abhishek Singh, Anmol Janu, Anurag Gocher, Arpit Sharma, "Automatic Regulation of Water Level through Automatic Relay Switching Operation"

[2] Madhurima Santra, Sanjoy Biswas, Sibasis Bandhapadhyay and Kaushik Palit, Smart Wireless water level Monitoring & Pump controlling System, International Journal of Advances in Scientific Research and Engineering (IJASRE), Vol. 03, Issue 4, May -2017.

[3] Md.Sourove Akther Momin, Pratik Roy, Samiul Islam, "International Journal of Research Construction of Digital Water Level Indicator and Automatic Pump Controlling System"

[4] Ms. Pooja K, Ms. Kusumavathi, Ms. Pavithra, Ms. Nishmitha, Prof. Aishwarya D Shetty, "Automatic water level indicator and controller using Arduino", International Research Journal of Engineering and Technology (IRJET)

[5].Priya J, Sailusha Chekuri, water level monitoring system using IoT, International Research Journal of Engineering and Technology (IRJET) Volume: 04 Issue: 12, Dec-2017.

[6] R. Kalidoss, R. Praniha, P. Raveena and C. Revathy, "Petrol Level Indicator with Automated Audio Alert System", 2017 International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET)

[7] S.Jatmiko, A B.Mutiara, Indriati ―Prototype of water level detection system with wireless, Journal of Theoretical and Applied Information Technology Vol. 37 pp 52-59, 2012.

[8]C.Jestop Jswin, B.Marimuthu, K.Chithra,"Ultrasonic water level indicator and controller using avr microcontroller.", 2017 International Conference on Information Communication and Embedded Systems (ICICES)