



DESIGN AND IMPLEMENTATION OF MICROCONTROLLER BASED AUTOMATED WATER LEVEL INDICATOR

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ABSTRACT

In this paper we tend to gift the concept of water level checking and administration within the association of electrical physical phenomenon of the water. All the a lot of significantly, we tend to explore the micro-controller based mostly water level detective work and dominant in an exceedingly wired and remote surroundings. Water Level administration methodology would facilitate in decreasing the house force utilization and to boot water flood. Besides, it will show the live of water within the tank which will bolster world Water kinds as well as cell dataloggers, satellite info transmission frameworks for remote water perceptive framework. Also, phones with relative high calculation force and nice graphical consumer interface have to be compelled to be accessible as these days. From the shoppers purpose of read it's needed to utilise such necessary plus in an exceedingly versatile application. At long last, we tend to projected an internet and cell based mostly perceptive administration convention would decide and schools water level all inclusive .

Index Terms:Conductivity, indicator, microchip, nozzle, and water level sensor.

1. INTRODUCTION:

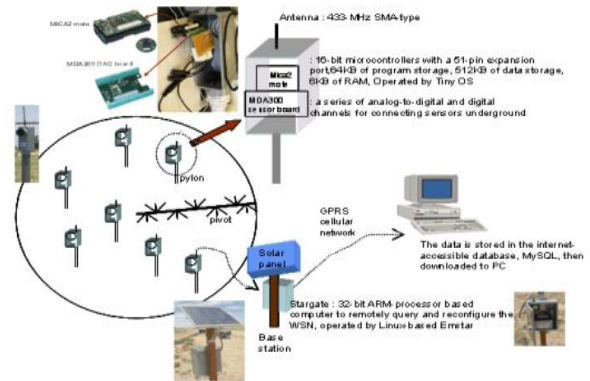
These days, human beings a lot of intrigued to form it world into associate degree innovation while notcontemplate the reaction through the planet. From their exercises it'll led to worldwide environmental amendmand where collapse strikes dead. The formatter ought to build these components, fusing the pertinent criteria that take when. More than 5 years back, our nation is

frequently surprised by the unpleasant surge collapse. a number ofneighborhoods ar influence is on japanese of Sabah and a number of neighborhoods at Johor, Kelantan, Terengganu and Kedah [1]. The position virtually the first stream and lowlying regions is conceivable to influenced. Amid surges happen, it offer influence in human life and their property[1]. By from Department of emptying and Irrigation (JPS), the misfortunes ar close

to RM fifty million to repair the damage led to by this catastrophe. what isa lot of, the factual info demonstrate the number of casualties around forty,000 people [2]. From the perception, it happens once the water increment to venturous level in undoubtedly and not determined by the powers. In any case, this condition is anticipated if the powers reliably grasp the flow condition of the water level. during this method, visible of the absence of conveyance info gathered within the knowledge framework, some developmentought to be done to assist the dominant voices in handling this issue and build the framework a lot of organized[3].during this manner, outlining the water level surveyor is one in all the developments to maneuver info in some structure and send it to power at tower. This water level surveyor can add twenty four hour for every week. These frameworks to boot provides a caution to power to form prompt move if water level increments to venturous level [3]. The framework is connected at the stream banks, low-lying territories, dam and therefore the city an extendedmethod from city moreover is used for mechanical half [1],[3]. The a lot of clarification can cite on philosophy in section three. during this method, in accordance with advancement of current world, remote checking framework has a lot of in associate degree application. Remote checking framework may be a compelling strategy to transmit, examined, supervise and provides associate degree input the target of information. By transmission strategy forobservant framework, if a prepared condition happens it'll send a symptom through Short electronic

communication System (SMS) passage and therefore the approved individual are advise with the precarioussection of water level. From the prepared message approved individual can build a prompt move [4].

II.THE SYSTEM STRUCTURE AND FUNCTION



System is shown in Figure 1:

The device hub is answerable of event the water-level, the door position and therefore the precipitation information. The sink hub is answerable of obtaining the data transmitted from each device hub, and constant transferring to the information focus through GPRS system. the information focus is answerable of obtaining the data, and giving to the terminal consumer to go to..

III.PROCEDURE

The instrumentality define is as appeared within the sq. chart. it's 2 microcontrollers set one at the tank and another at the sump. They perform the assignment of dominant, blunder recognition and sequencing the correspondence. At the tank, 2 levels of water ar thought of i.e.

at the purpose once the tank is verging on void as "LOW" and full as "HIGH". 2 sensors are set at these 2 levels [2][3]. The sensing element yields are spread out and given to the tank controller as intrudes on so the foremost noteworthy would like is for "LOW" level. that the conditions for tank controller to send solicitation are:

- once level "LOW" is known.
- once level "HIGH" is known.

When Associate in Nursing interfere with happens, the tank controller must correspond with the one at the sump. thus a solicitation is shipped from the tank controller through R.F module. for every demand that it sends, the controller at the sump must acknowledge for correspondence adequacy. Assume Associate in Nursing affirmation is lost or a blunder happens then the solicitation is retransmitted. The correspondence bits are designed in an exceedingly manner that initial four bits of transmission reliably shows the contrivance temperament and next piece is blunder distinctive bit and last three bits are data bit.

The contrivance recognizable proof piece stays off from the obstruction of signs of 2 neighboring frameworks At the sump, controller aboard a telephone set module is about. The sensing element is place for distinctive neighborhood or group action of water level. sensing element sign is given because the outer hinder to the controller. At the purpose once the controller at the sump gets a message of "LOW" water level at the sump, it acknowledges to the tank

controller and switches the engine. Also, assume the water level at the sump is at "NO WATER", the controller changes a ringer to alarm the businessman and sends a solicitation to the tank controller to carry up till water is stuffed yet again into the sump. Controller continues delivering a ringer caution for hour. Once the sump is stuffed it cautions the controller at the tank and therefore the tank controller sends the solicitation once more to modify the engine. what is additional, once a "FULL" water level at the tank is gotten by the sump controller, it switches off. that the conditions for sump controller to send solicitations are:

- once "NO WATER LEVEL" within the sump is distinguished.
- once water is stuffed back.

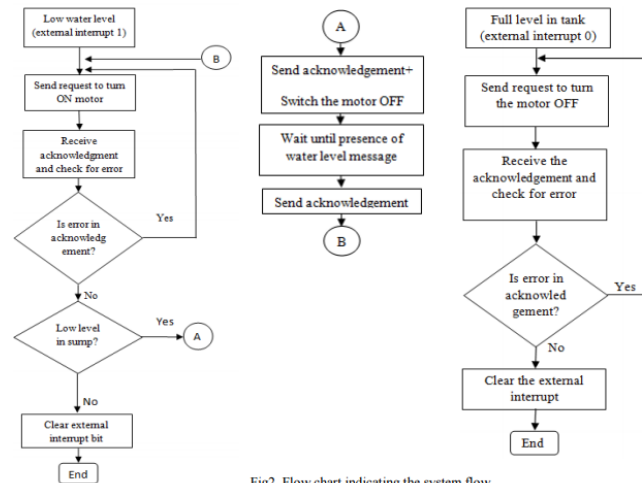


Fig2. Flow chart indicating the system flow

IV COMMUNICATION PROTOCOL

A. Protocol design

The framework is that the numerous to single remote sensing element system, and also the position of the sensing element hub and sink hub is

mostly altered during this remote system framework. The framework utilizes the telecast correspondence convention that depends on the transmission reference casing to satisfy the low power utilization and excess solid request[3]. The convention has characterised 2 forms of edge structures: reference casing and data define.

1) Beacon frame

The signal casing is shown to the sensing element hub by the sink hub. It incorporates prelude arrangement, synchronization word, guide define acknowledge and point of reference define grouping. At the purpose once a sensing element hub has new data to transmit, it build CC1020 enter RX state[10] to urge the point of reference define. The guide casing is characterized as takes after:

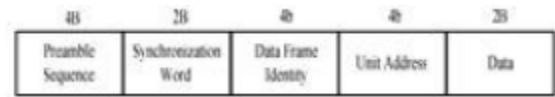


Every indicator define has seven bytes. The preface succession synchronizes the transmitter associate degreed beneficiary; the synchronization word denote an data casing; the guide define acknowledge separates between the data define. The framework utilizes 0110 because the indication of guide casing. The indicator define grouping denote the distinctive guide edge, and its substantial extent is 0~15.

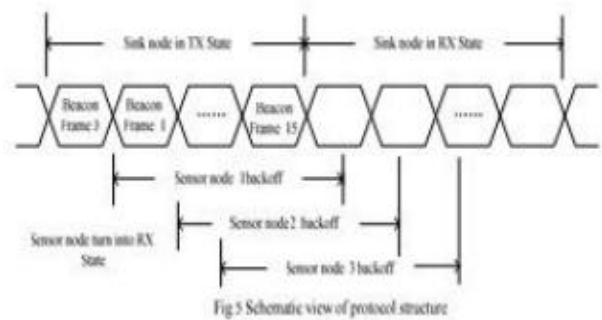
2) Data frame

The data casing is that the information message transmitted to the sink hub by the sensing element hub. It incorporates introduction succession,

synchronization word, data define acknowledge, unit location and data. it'scharacterised as takes after:



Since the estimation of the water-level or approach position device and also the precipitation device wants simply 2bytes to specific, during this manner the data define contains nine bytes. the data define separates between the signal casing. The framework utilizes 1001 because the indication of knowledge edge [4]. The unit address denote the distinctive hub's terminal, and it contains four bits, and might be extended if necessary. the info contains a pair of bytes, communication the device information. The postponement time of various sensor hub is divergent. This can well maintain a strategic distance from the information crash. The sensor hub is in the example of low-power utilization in different times. The schematic outline of the convention structure is appeared in Figure 5:



B. Test

In the remote correspondence, the dependability of the information transmission is important[7], and it

chooses the framework's execution. The sink hub occasionally transmits the signal edge constantly. Once got the signal casing, the sensor hub transmits a specific number of information casing in the relating opening [5]. The sink hub gets the information transmitted from different sensor hubs, and the got information is checked and numbered. In the research facility, the single-single test and the various single test are carried on independently.

1) Single-single

The analysis is gone ahead with an entryway position sensor hub and the sink hub. The hub starts to transmit the information bundle after got the reference point outline. It transmits out and out 3000 information parcels, and after that acquires the experimental result. The outcome is appeared in Table 1:

TABLE I. SINGLE-SINGLE

NO	Packes ransfered	Packet eceived	Packet Error Rate(%)
1	3000	2991	3.0
2	3000	2987	4.3
3	3000	2994	2.0
4	3000	2991	3.0
5	3000	2990	3.3

2) Multiple-single

The analysis is gone ahead with four sensor hubs and the sink hub. Every sensor hub starts to transmit the information parcel after got the guide outline. Every sensor hub transmits by and large 3000 information bundles, and after that acquires the experimental result. The outcome is appeared in Table 2:

TABLE II. MULTIPLE-SINGLE

NO	Packet received				Packet Error Rate (%)			
	Gate1	Gate2	Rain	Water	Gate1	Gate2	Rain	Water
1	2992	2984	2979	2979	2.7	5.3	7.0	7.0
2	2991	2991	2976	2979	3.0	3.0	8.0	7.0
3	2991	2983	2979	2972	3.0	5.7	7.0	9.3
4	2990	2988	2983	2973	3.3	4.0	5.7	9.0
5	2990	2985	2980	2976	3.3	5.0	6.7	8.0

3) The experiment analysis

From the trial result, it will be seen that the PER is underneath a hundred and twenty fifth in light-weight of the very fact that no aggravation from totally different hubs. The PER is sufficiently low to meet the framework's application demand. The precipitation hub will store the information; the yield of the water-level and door sensing element will be preserved. within the event that there's Associate in Nursing data misfortune within the correspondence, it's very little impact on framework execution[5]. In the perspective of apparatus purpose, there mainly have 2 viewpoints that cause the knowledge loss. The time for CC1020 to vary state is subjective. CC1020 rushes to the RX state from the unmoving state, and hurries to the TX state from RX state. when modified the state, the steady time is irregular, and it sets aside some minutes and causes the knowledge bundle misfortune [6]. Then again, the perimeter components around CC1020 have terribly impact on the stableness. From the trial, it are often found that the PER[7] of the water hub is zero.7%~1% that is larger than the

others. it's not known with the transmission prepare however rather known with the precisions of the perimeter limit, inductance and resistance of CC1020 and fastening quality[6].

V.CONCLUSION

The water level pointer was effectively planned and might be dead to screen the water level condition systematically. The framework consists as simple to use programming which supplies the points of interest knowledge, to assemble data and send connected knowledge to the approved men for prompt activity to confirm the intelligence operation region underneath controlled. Moreover, the framework will defeat a number of problems tackling in business ventures, for instance, the deferral within the conveyance of knowledge to the officer. apart from that, this framework in addition will decrease the time period blunder in huge business enterprises by utilizing the remote framework for correspondence.

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