Simulation of Automatic Food Feeding System for Pet Animals

Dharanidharan.j[1], R.Puviarasi[2],
Department of ECE,
Saveetha School of Engineering,
Saveetha Institute of Medical and Technical sciences, Chennai

***Abstract*: An expanding number of ranches are depending on programmed nourishing to facilitate their workload, spare time and accomplish adaptability. The ranches reviewed were useful clients of programmed bolstering frameworks. There are different frameworks which allow the mechanization of nourishing frameworks. At exhibit rail-guided bolster wagons are the best settled practically speaking, yet transport lines and self-pushed feeders are likewise utilized. The quantity of encourage segments utilized contrasted the same amount of as the time prerequisite. The working time estimations of the programmed bolstering frameworks (AFS) appear that by utilizing an AFS it is conceivable to spare time and accomplish more prominent adaptability. A huge lessening in working time by correlation with a traditional bolster blender wagon, be that as it may, must be normal on account of sizeable groups. The working time necessity for programmed bolstering frameworks depends basically on the expulsion method, separate from the encourage store and sort of storehouse.**

Keywords:- Arduino, Stepper Motor, Automatic feeding

I. INTRODUCTION

The extension behind building up the programmed angle sustaining framework is to decrease the manual fish bolstering framework which uses more work powers. Besides, there are sure favorable circumstances that prompt its improvement which are the measure of sustenance that will be conveyed to the water body that will quantify or controlled keeping aquarium clean and fishes solid[1]. Feeders can encourage the fishes notwithstanding when the proprietor is away advantageously. In light of the abilities and functionalists, general battery worked angle feeder gadgets accessible in the market can just oblige sustenance like beds, chips and powder, so by including extra compartment for pleasing common fish nourishments like worms, water escapes and so

on makes the gadget more advantageous as it were[2]. The gadget likewise discovers its application on medium scale Angle Lake by adding blower to spread out the sustenance uniformly in the coveted zone. By fusing the above focuses the mechanized fish feeder framework can encourage various types of fishes in a characterized limited. The basic computerized angle feeder frameworks which are utilized can administer the fish sustenance of the coveted sum at a consistent speed. Utilizing consistent speed brings about spreading of a similar measure of nourishment regardless of the prerequisites[3]. Considering this disadvantage another fish sustaining framework which is for the most part utilized these day utilizes PWM innovation for the speed direction of the engine used. This specific research paper is about the plan and manufacture of a "Programmed Fish Feeder System utilizing Arduino Uno" which discovers its application in the aquarium. This gadget will administer angle nourishment at certain time interim with exact measure of sustenance. Additionally the planning can be modified to guarantee that the nourishing timetable is steady[4]. The programmed angle feeder is an answer for guarantee that the pet fishes are nourished in solid route and on plan. The model executes the joining of equipment and programming to control the fish nourishing operation. The controller utilized for this gadget is Arduino Uno microcontroller board. The controller controls the nourishing component of the framework[6].

This examination dedicated to lessen the work cost and also grow better pellet apportion framework. In this manner, this examination was proposed to plan a programmed angle feeder framework utilizing PIC microcontroller application[7]. The gadget created joins mechanical and electrical framework in administered into the stamping region of the lake construct exclusively with respect to the revolution speed of the engine itself. The controller accompanied a keypad giving client more choice in deciding the appropriate speed for the engine relies upon their controlling fish bolstering action. This gadget, essentially comprises of pellet stockpiling, previous, stand, DC engine and microcontroller. The pellets controlled by DC engine which situated under the pellet stockpiling[8]. A control framework was then joined to this gadget enabling the fish to be encouraged at the correct process duration as required or predefined by client. Clock was utilized in this gadget to control the engine turn appended to circle previous, which administer the pellets into the water[9]. The pellets steers[10]. To put it plainly, the pellets in the

programmed angle feeder framework will be controlled by the revolution speed of DC engine.

II. LITERATURE REVIEW

The programmed angle feeder framework is actualized utilizing Arduino and model equipment is planned utilizing both equipment and programming. Initially, the data was gathered with respect to advancement of fish sustaining system. The inquire about was than bifurcated into programming and equipment. In the later stage equipment and programming both were combined. The information in the program was prepared utilizing Arduino and the yield of the Arduino through an interface was given to the stepper engine.

The plan of the programmed angle feeder framework comprises of three imperative parts that are Arduino, stepper engine and stepper engine driver .The Arduino acts as the contribution for the outline program and yield for the stepper engine driver which gives the required set time and engine revolution .Apart from this, the engine driver assumes a vital part in conveying the yield of Arduino to the stepper engine by venturing up the voltage level.

III. PROPOSED WORK

Fig 2,3,4 are shows hardware selection process in app(ardiuno IDE)..

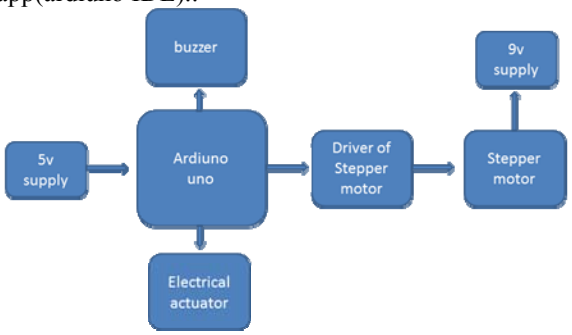

Fig 1: Block Diagram of Food Feeding

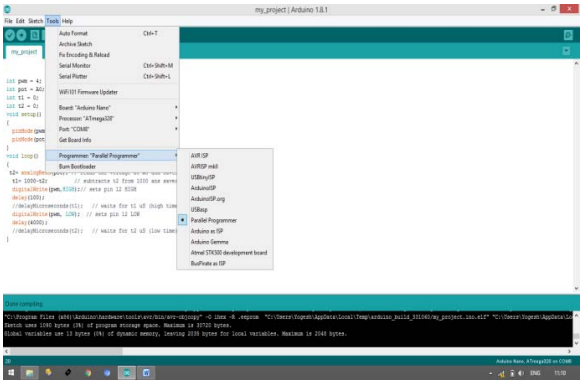

Fig 2: hardware selection process

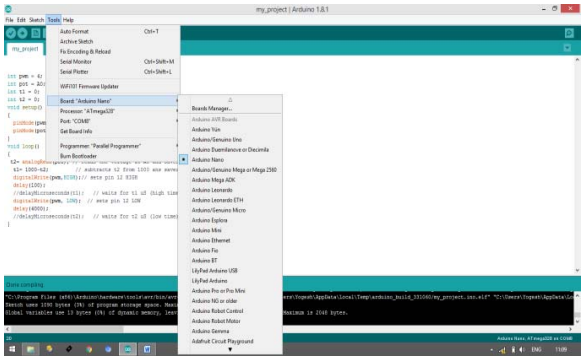

Fig 3: hardware selection process

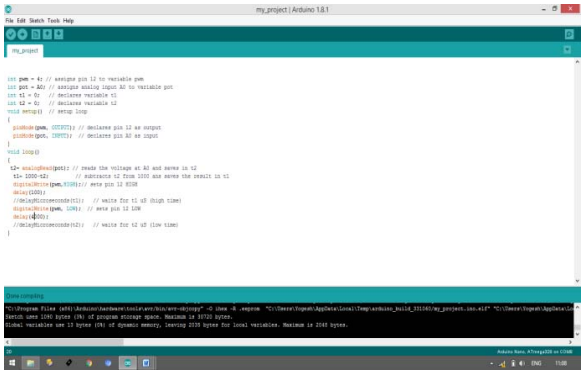

Fig 4: hardware selection process

•

IV. CONCLUSION

It was watched that the engine rotated making ten strides with postponement of one entire day. The deferral could likewise be reached out to a few hours according to the prerequisites. In the event that this idea is actualized on expansive scale than we can use in lake administration, angle cultivating ,aquaculture and so forth. This programmed angle feeder framework can be utilized different pets other than angles for instance feathered creatures, turtles and so forth.

REFERENCES

[1] Patrick Henry G. Baniqued, Martin Joseph C. De Castro, Chael Triston T. Luzano,Microcontroller Based Fish Feeder, 2009

[2] M.Z.H.Noor,A.K. Hussain, M.F. Saaid, M.S.A.M.Ali, M.Zolkapli, The Design and Development of automatic Fish Feeder System Using PIC Microcontroller, 2012

[3] S.J. Yeoh ,F.S. Taip, J.Endan,R.A. Talib and M.K. Siti Mazlina, Development of AutomaticFeeding Machine for Aqualculture Industry

[4] Mohd Nizam Bin Mohd Noor, Development and Prototyping an Automatic Fish Feeder, 2008

[5] Allen Goldblatt, "Automatic feeder for marine mammals", Laboratory for marinne mammal Research University of Tel Aviv, 1992

[6] Ding Jie, Wang kecheng. A new Type Speed Regulator for a PWM Speed RegulatingSystem.Anshan Institute of science and technolgy, 2003.

[7] Song jian, Jiang Junsheng, Zhao wenliang. "*The DC-motor PWM Speed regular system Base on Single Chip microcomputer"*. Study on Agricultural Mechanization,2006,1(1)

[8] Sabari Akilesh K, Savitha V, Vinithra N, Dhansekar J, "*Smart Fish Feeder"*, InternationalJournal of Scientific Research in Computer Science, Engineering and Technology,2017,111

[9] John S., loannis K. (2010). Lab Kits Using the Arduino Prototyping Platform. 40th ASEE/ IEEE Frontiers in Education Conference.

[10] Francisco A.A, Vignaud G.A (2013). Using open-source platform for trajectory control of DC motors, IEEE.

[11] W Fang and C.M Chang. "Development of an automatic feeder with the capability of knowing when to stop feeding". Proceedings of the Annual International Conference and Exposition of the World Aquaculture society, Australia, 26 April–2 May, 251, 1991.

[12] K. Barringtom. "History of Fish Keeping As A Hobby." www.ratemyfishtank.com. 2013, December 24.

[13] M.Z Noor, A.K Hussian, M.F.Saaid, M.S. Ali, & M Zolkapli. "The design and development of automatic fish feeder system using PIC microcontroller". IEEE Control and System Graduate Research Colloquium. , 2012, pp. 343-347.

[14] J.V Lee, J. L. Loo, Y. D. Chuah, , P. Y. Tang, Y.C Tan, & Goh. "The Use of Vision in a Sustainable Aquaculture Feeding System". Research Journal of Applied Sciences, Engineering and Technology. Vol. 6(19): 2013, pp. 3658-3669.

[15] M.N. Uddin, M Rashid, M. Mostafa, H. Belayet, S.Salam, N.Nithe, M. Rahman, & A.Aziz. "Development of Automatic Fish Feeder". Global Journal of Researches in Engineering: A Mechanical and Mechanics Engineering. Vol.16 (2), 2016, pp. 14-24.

[16] G.Stéphane, C,R. Philippe, F.Christian, D.M Benjamin and A.D David "Acoustical monitoring of fish density, behavior, and growth rate in a tank". Aquaculture, vol.251(2), 2006, pp.314–323.

[17] A Yousef, S Steven, and L.Xiaoming. "Automatic Feeding Control for
Dense Aquaculture Fish Tanks". IEEE Signal Processing Letters, 2015,
pp. 1-9.

[18] C.Chang,W. Fang, R-C Jao, C.Shyu, and I Liao. "Development of an intelligent feeding controller for indoor intensive culturing of eel".
Aquacultural Engineering, vol.32(2), 2005, pp.43–353.

[19] S. Yeoh, F.S Taip, J Endan, R.A. Talib and M.Siti. "Development of Automatic Feeding Machine for Aquaculture Industry". Pertanika J. Sci. & Technol. Vol.18 (1), 2010, pp. 105 – 110.

[20] Bremer, R. "Auto Fish Feeder Feeds Fish Automatically". 2014, October 14.