iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 6 **Issue:** III **Month of publication:** March 2018

DOI: http://doi.org/10.22214/ijraset.2018.3186

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 6 Issue III, March 2018- Available at www.ijraset.com

Innovation in Ball Throwing machine

Nitin Dongre[1] Bharat khurana[2,] Dr. Sanjay Ikhar[3]
[1, 2] *Department of mechanical Engineering KDK college of engineering, Nagpur*
[3] *Department of mechanical Engineering KDK college of engineering, Nagpur*

Abstract: The main purpose of the ball throwing machine is to enable a batsman to practice by overcoming the requirement of bowler and also to develop the low cost ball throwing machines which used for cricket practice. There are the various types of machines which are available in the market. But all the machine are very expensive and having complex controlled system so the batsman cannot control the machine by own during practice session. Therefore in order to overcome these problem author suggest the concept and design with simple and unique control system [(1,2)]. However All the above machine are having number of disadvantage and limitation, [(1).]They are great in volume, higher cost, difficult to control and also not portable due to large size. The programmable machine required highly skilled person to operate and it is very costly. So the aim of ball throwing machine to provide more accurate and consistence batting practice for cricketer in all possible direction. The auto feeder solenoid operated valve is an accessory fitted to the ball throwing machine for releasing balls after a certain time interval

Keywords: solenoid valve, tennis ball

I. INTRODUCTION

A cricket ball throwing machine is a device which used in cricket net practice to deliver the ball to the batsman

In a cricket there is a requirement of a person as a bowler. So to overcome this, ball throwing machine is used, which enable to practice or to work on specific skill through repetition of the ball being bowled at a certain length, line and speed

The batsman required the bowler to bowl at a particular line and length as per the need and sometimes the bowler is able to bowl at that spot but more than often the bowler may not be able to bowl at that perfect spot because of various reasons. Thus it can be easily seen that the human body cannot perform the task with exact accuracy as required. So there is a need for adjustable machine which can bowl perfectly at the perfect line and length Another problem which a bowler often face on the net practice is that the ball bowled to him vary in pace. While a regular pace of bowling is expected. A human cannot bowl at the exact same pace required continuously. The problem is also resolved with the help of ball throwing machine . So the purpose of the ball throwing machine to provide more accurate and consistence batting practice for cricketer in all possible direction

II. OBJECTIVE

A. To develop a cost effective, compact ball throwing machine.
B. The developed machine should have greater mobility.
C. To provide provision for using different size ball**.**

III. METHODOLOGY

The main mechanism of ball throwing machine is consist of two spinning wheel between which ball are fed. The gap between the wheels is less than the ball diameter. The diameter of the tennis ball is varies from 6.5 to 6.8 [(3)]cm and the mass in range of 56 g to 59 g. So the gap is slightly less than the 6.5 cm. The two wheel with rubber tyre each driven by its own electric-motor. The device is mounted on tripod or similar stand. The motor is operated on the the battery and turn in opposite direction. The controller allow variation of the speed of each wheel

IV. SIMULATION AND SYNCHRONIZATION OF AUTO FEEDER OF CRICKET BOWLING MACHINE.

An auto feeder was designed for the cricket ball throwing machine developed in CMERI.(8) The auto feeder is an accessory fitted to the ball throwing machine for releasing balls after a certain time interval. Before manufacturing the same, synchronization between the Balls and plunger of the solenoid valve was required to obtain the dimensions as well as the specification of the solenoid as shown in Fig 1

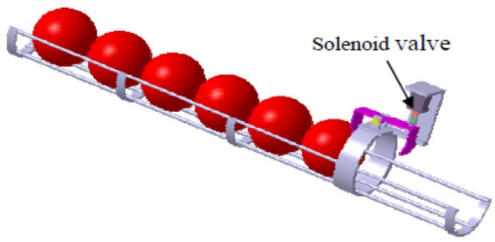


Fig. 1 Auto feeder with balls

Author suggests the model for describing the auto feeder mechanisms with the help of solenoid operated valve. The auto feeder is operated on the solenoid valve which release ball at definite time interval and the solenoid valve is operated on arduino device of 5 volt [9] as shown in fig. 2 which run on electricity 10[10]

Fig.2 Arduino device

V. ADVANTAGES OF SOLENOID

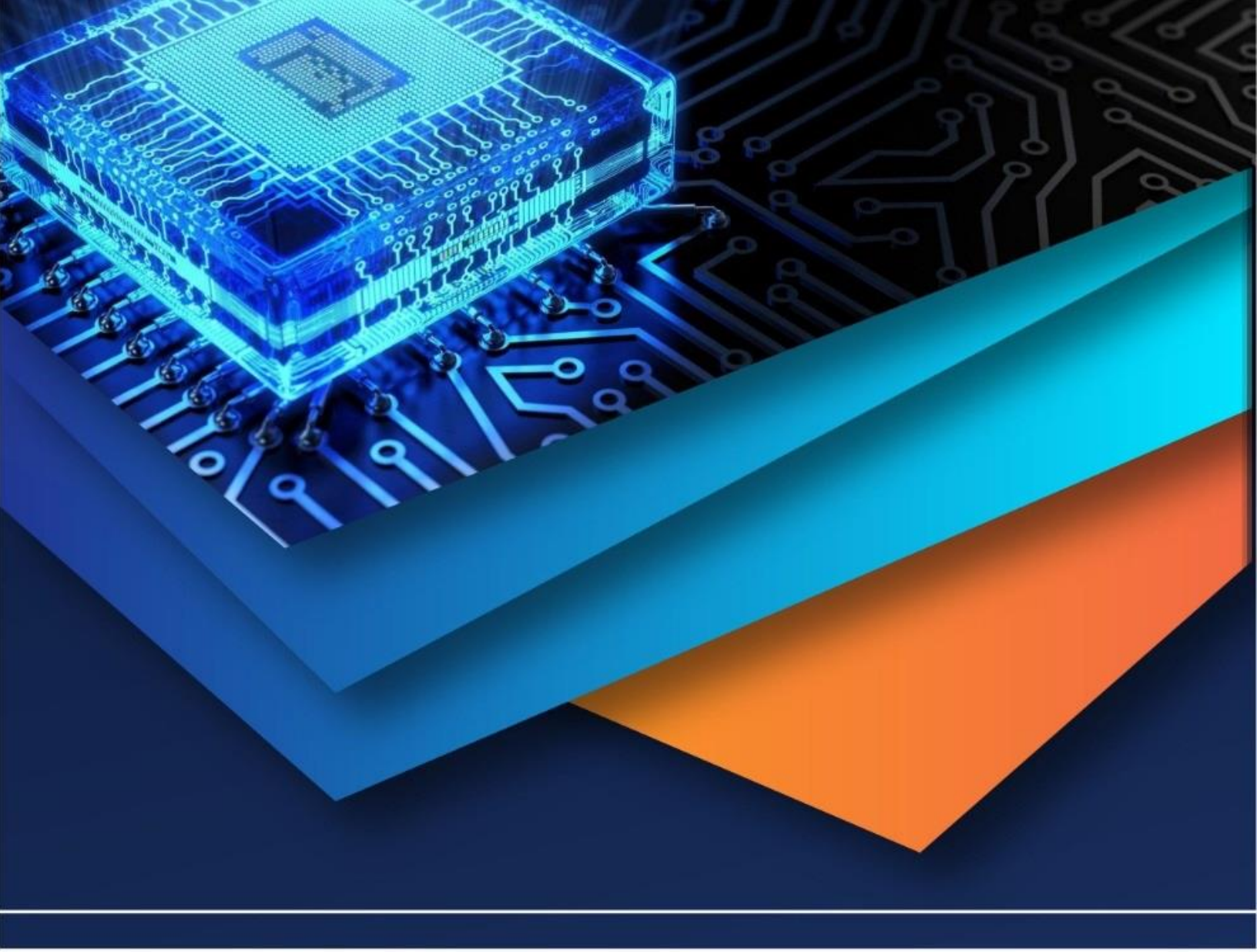
A. It is have Better performance
B. Triggers the Action can be done simply
C. It Resolve seal leakage problem
D. It is simple in structure and price is low than the other control valves

VI. CONCLUSION

The length of the bowling can be varied from bouncer to Yorker by controlling pitching angle, according to the will of the batsman. Using simulation with correct input conditions one get the precision and reproducibility of ball pitching distance that is required for effective batting practice The auto feeder solenoid operated valve is an accessory fitted to the ball throwing machine for releasing balls after a certain time interval

REFERENCES

[1] Tseng, M.M.; Jiao, J.; Su, C.J., Virtual Prototyping for customized product development, Integrated Manufacture System, Vol. 9, No.6, 1998, pp.334-343.
[2] Rooks, B., A shorter product development time with digital mock up, Assembly Automat, Vol.18, No.1,1998, pp.34-38.
[3] Caldwell, R. D., N. Ye and D. A. Urzi, Reengineering the product development cycle and futureenhancements of the computer-integrated environment, International Journal of Computer Integrated Manufacturing, Vol. 8, No. 6, 1995, pp. 441-447.
[4] http://www.adams.mscsoftware.com/
[5] Wang Guo-qiang, Zhang Jin-ping, Ma Ruo-ding, Virtual Prototype Technology and its Realization based on ADAMS, Xian: Press of Xian University of Industrial, 2002.
[6] Zhe Li, Sridhar Kota, Virtual Prototyping and Motion Simulation with ADAMS, Journal of Computingand Information Science in Engineering, Transactions of the ASME, Vol. 1, 2001, pp. 276-279
[7] S. Tickoo, D. Maini, and V. Raina, CATIA V5R16 for Engineers & Designers, Dreamtech Press, 2007.
[8] S.S.Roy et al, Design of an improved cricket ball throwing machine, Proc. of National Conference on Machines and Mechanisms (NaCoMM), 2005, pp 401-404.
[9] https://www.google.co.in/search?q=arduino+specification&dcr=0&source=lnms&tbm=isch&sa=X&ved=0ahUKEwiCjKWl8tvZAhUYbo8KHYOZDmsQ_AUICigB&biw=1280&bih=669#imgrc=CpxT6MWtho8bVM:
[10] https://en.wikipedia.org/wiki/Arduino



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY