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**VIJAY PATIL**

*Dept. of Mechanical Engg  
G.M.Vedak Institute of tech,tala-  
402111, Raigad  
Vijaypatil1224@gmail.com*

**DILIP HADAL**

*Dept. of Mechanical Engg G.M.Vedak  
Institute of tech,tala-402111, Raigad  
Diliphadal027@gmail.com*

**SAMEER MHATRE**

*Dept. of Mechanical Engg  
G.M.Vedak Institute of tech,tala-  
402111,  
Sameermhatre50@gmail.com*

**AKHILESH GHAVTE**

*Dept. of Mechanical Engg  
G.M.Vedak Institute of tech,tala-  
402111, Raigad  
akhileshghavte@gmail.com*

**PROF.M.M.BADADARE**

*Assistant Professor, Dept of  
Mechanical Engg  
G.M.Vedak Institute of tech,tala-  
402111, Raigad.  
mansing9@gmail.com*

**ABSTRACT:-** Sugar industry plays very important role towards socio-economic development in India. More than half a million unskilled and skilled workers are engaged in sugar industry. Traditional sugarcane planting process contains manual formation of furrows, cultivation and harvesting. Process of manual sugarcane plantation is labor intensive and time consuming. To reduce the manual effort equipments has been developed. However, machines suitable for planting of cane to suit small field as still challenging job. In this work, semiautomatic machine was developed to overcome the limitations of traditional methods. The machine was designed which makes the furrows with the help of tractor, cut the sugarcane and feed into the furrows as well as spraying of pesticides and fertilizers. The machine was used to distribute sugarcane uniformly throughout the furrows for uniform production. The main aim of this work is to reduce energy as well as labor required for sugarcane plantation.

**Keywords—** Sugarcane plantation ; Design; modeling; semiautomatic



## DESIGN AND FABRICATION OF GRAPPLING GUN

**VISHWAM H. AREKAR**

*Mechanical Department  
G. M. Vedak Institute of Technology,  
Tala - 402111, Raigad  
ghaxetashunt07@gmail.com*

**SHUBHAM V. PATIL**

*Mechanical Department  
G. M. Vedak Institute of Technology,  
Tala -402111, Raigad  
Samirupkar22@gmail.com*

**SHUBHAM G. DHUPKAR**

*G. M. Vedak Institute of Technology,  
Tala - 402111, Raigad  
yugeshmal1993@gmail.com*

**JITESH G. BHAGAT**

*Assistant Professor, Mechanical Engineering  
Dept.,  
G. M. Vedak Institute of Technology,  
Tala -402111, Raigad  
mansing9@gmail.com*

**SAURABH S. PATIL**

*Mechanical Department  
G. M. Vedak Institute of Technology,  
Tala -402111, Raigad  
rohanbhare111@gmail.com*

**ABSTRACT:-** This paper consists of design information and procedure for fabrication of grappling gun, which is a totally new device. On basis of this data and calculations the design needs to appear safe. Once the fabrication is complete practical tests will be carried out on this device to check its reliability and functional ability. This paper is meant to present the concept of grappling gun.

**Keywords—** grappling gun; hook; fabrication; design; winch;rope launcher