UTA016: GROUP PROJECT FOR PRECISION MANGONEL

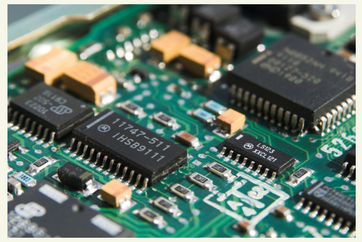
THAPAR INSTITUTE OF ENGINEERING & TECHNOLOGY

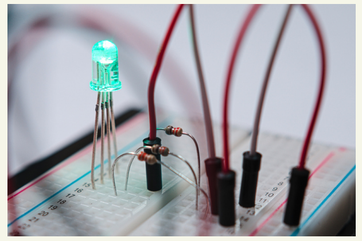
INTRODUCTION

THE MANGONEL IS A MEDIVAL SEIGE WEAPON USED FOR THROWING PROJECTILES AT CASTLE WALLS.
WE ARE MODERNIZING IT BY INTRODUCING ELECTRONIC ELEMENTS IN IT TO MAKE IT MORE EFFECTIVE.THE MANGONEL PROJECT FOSTERS INNOVATION AND ENABLES STUDENTS TO DEVELOP THEIR CREATIVE SKILLS IN COHERENT AND STRUCTURED MANNER.

AIM

- Programming of Arduino Digital I/O pins for various applications
- Sensing any activity through Arduino
- Develop a micro electronic circuit to determine and display the angular velocity of the throwing arm





COMPONENTS

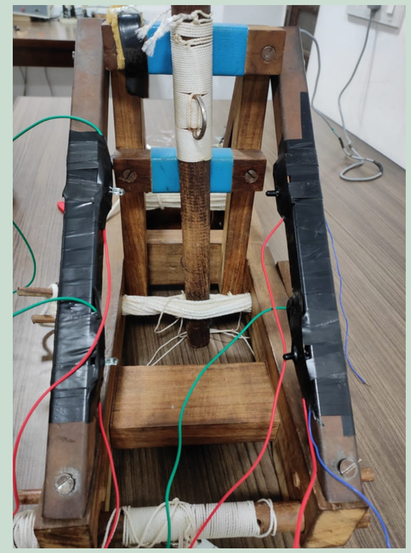
1. Arduino
Arduino is an open source electronics platform. It is able to read inputs and turns it into an output.

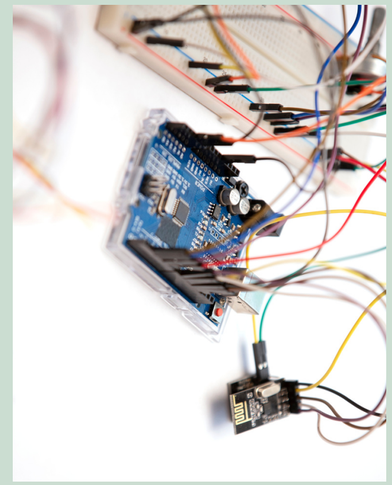
2. Ultrasonic Sensor
An ultrasonic sensor is an instrument that measures the distance of an object using ultrasonic waves.

3. IR Sensors
Transmitter and IR receiver are commonly used to control electronic devices wirelessly ,mainly through a remote.

MATERIALS REQUIRED

Arduino uno
PCB Board
Resistors
Ultrasonic sensor
IR transmitter and receiver
And gate(IC 4081)
JK Flip flop(IC 4027)





OUTCOMES

The speed and angle of throwing arm is measured by the IR and ultrasonic sensors,which in turn can be used to calculate the range of the projectile.

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