Catapult Bomber

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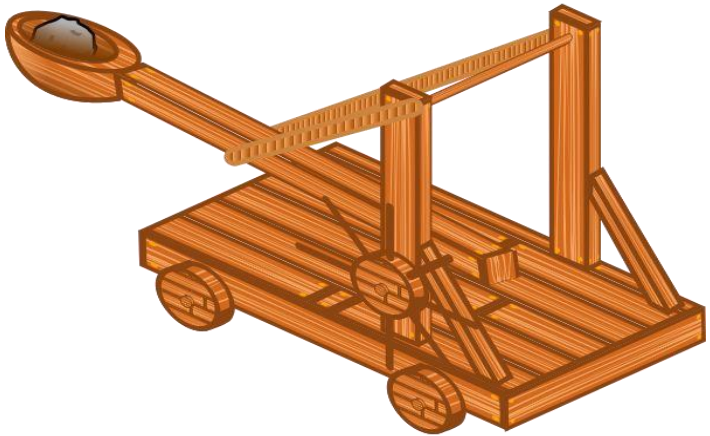

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Project Description

A **Catapult** is a ballistic device used to launch a projectile a great distance without the aid of gunpowder or other propellants – particularly various types of ancient and medieval siege engines. A catapult uses the sudden release of stored potential energy to propel its payload. Most convert tension or torsion energy that was more slowly and manually built up within the device before release, via springs, bows, twisted rope, elastic, or any of numerous other materials and mechanisms.

This presentation explores the concept of an catapult bomber and its components. Discover how IR sensor, DC motor work together to launch a projectile.

Functionality

The Mechanism of a Catapult:

The Mechanism catapult uses is Trigger Mechanism;consists of several key components, each contributing to its functionality:

Catapult arm: The catapult arm is the long wooden beam or lever that holds the projectile. It is the part that moves when the catapult is fired.

Tension: Tension, often created by twisted rope or other means, stores the energy required to launch the projectile.

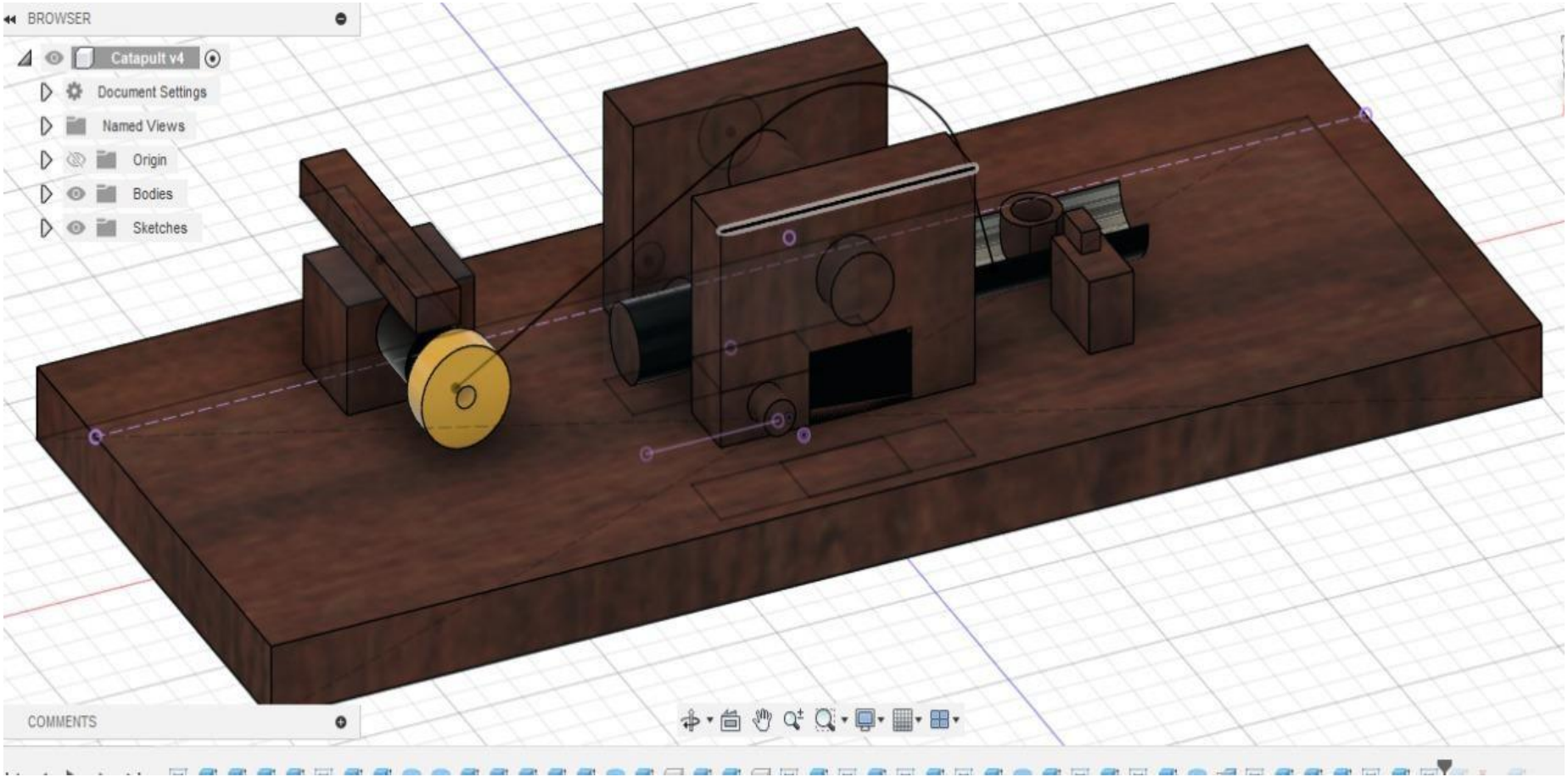
Sudden release: When the tension is suddenly released, it transfers the stored energy to the catapult arm, causing it to swing rapidly and launch the projectile.

IR Sensor Detection:When an object is detected, the IR sensor triggers a response, initiating the next step in the process.

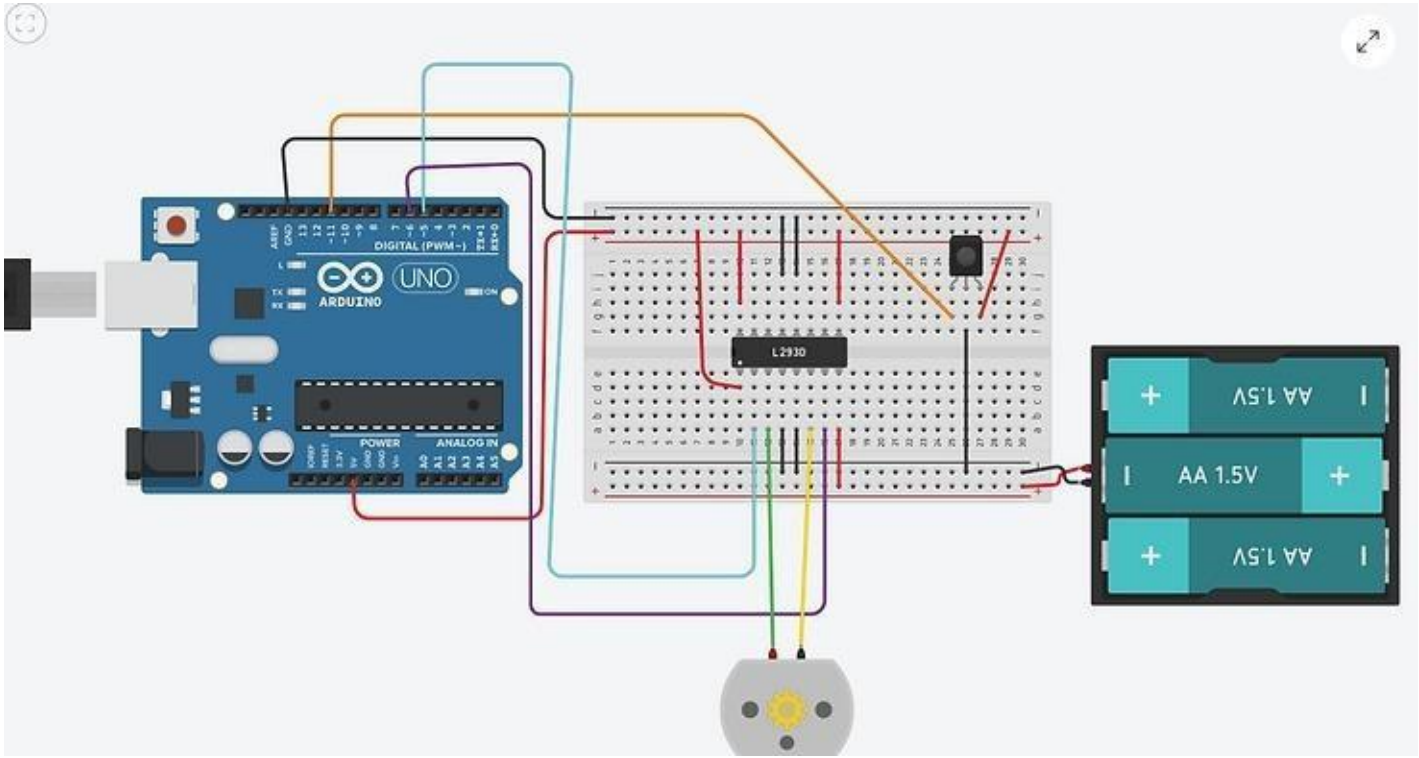
DC Motor :After IR sensor detects the object,Motor pulls the rope which converts the potential energy by tension to kinetic energy in projectile

FUSION 360 DESIGN

https://a360.co/3vEPDKS


BROWSER
Catapult v4
Document Settings
Named Views
Origin
Bodies
Sketches
COMMENTS

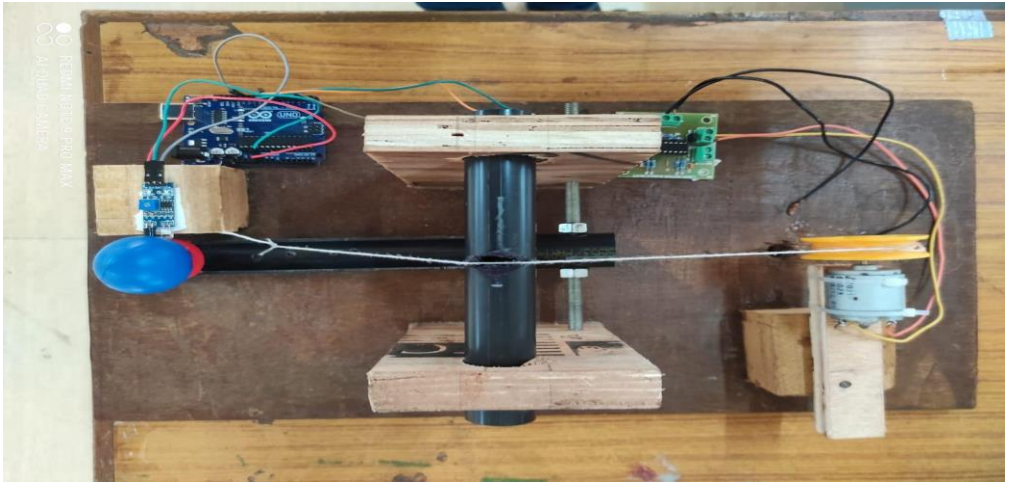
TINKERCAD CIRCUIT DESIGN AND CONNECTIONS



```
int IR = 12;
int ENA = 2;
int IN1 = 8;
int IN2 = 9;

void setup()
{
  pinMode(IR,INPUT);
  pinMode(ENA, OUTPUT);
  pinMode(IN1, OUTPUT);
  pinMode(IN2, OUTPUT);
  Serial.begin(9600);

  digitalWrite(IN1, LOW);
  digitalWrite(IN2, LOW);
}


void loop() {
  int sensor=digitalRead(IR);
  if (sensor==0)
  {
    digitalWrite(IN1, LOW);
    digitalWrite(IN2, HIGH);


    for (int i = 0; i < 255; i=i+50) {
      analogWrite(ENA, i);
    for (int i = 0; i < 255; i=i+50) {
      analogWrite(ENA, i);
      delay(100);
    }
      digitalWrite(IN1,HIGH) ;
      digitalWrite(IN2,HIGH) ;
      delay(100) ;


  }
  delay(4000);
}
```

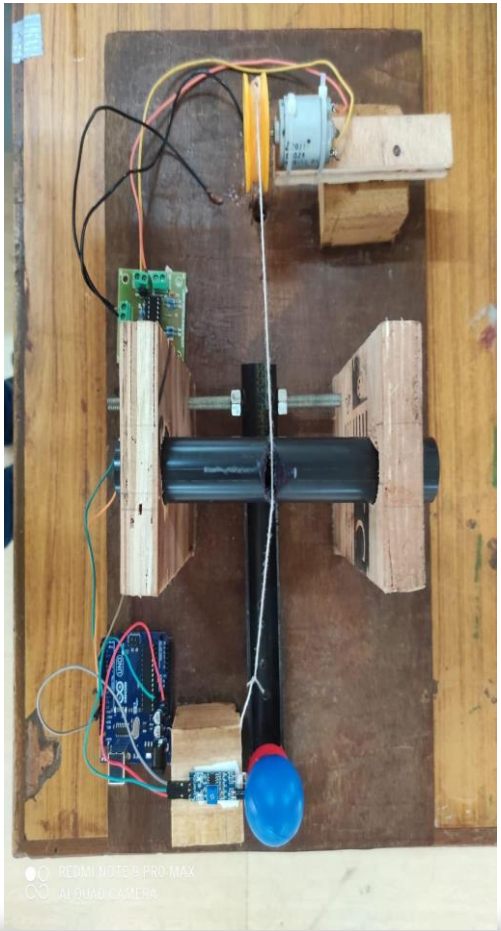
Project Objectives

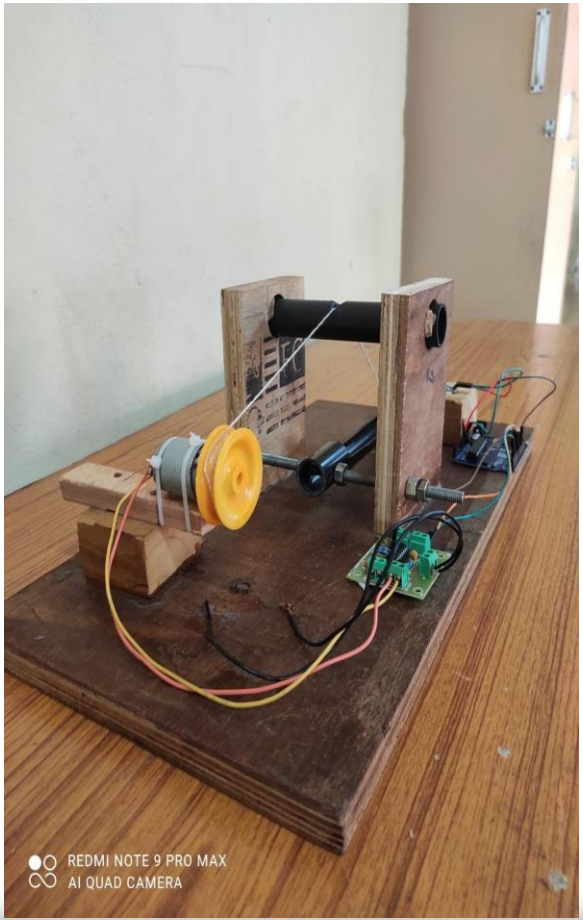
The goal of the project is to increase your understanding of motion in two dimensions by building a catapult to launch plastic ball, paper ball ..

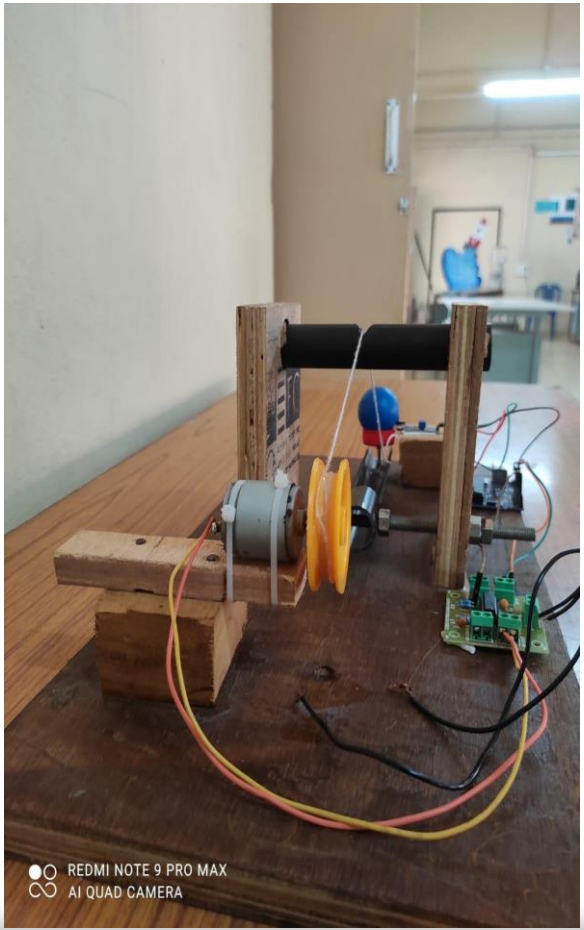


Bill of Materials

Motor	₹150
String	₹5
IR	₹40
Arduino UNO + Cable	₹490
Jumper wires	₹10
Motor driver	₹80
Pulley	₹40
Projectiles	₹5
TOTAL	***₹820***




REDMI NOTE 9 PRO MAX
AI QUAD CAMERA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VIDEO LINK:

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