BASEBALL BATTER

AIM:

To build and program the base ball batter model using Nova Bot.

DESCRIPTION:

When a ball is rolled towards the robotic base ball batter, the Ultrasonic sensor senses the ball and then it swings the bat to whack the ball.
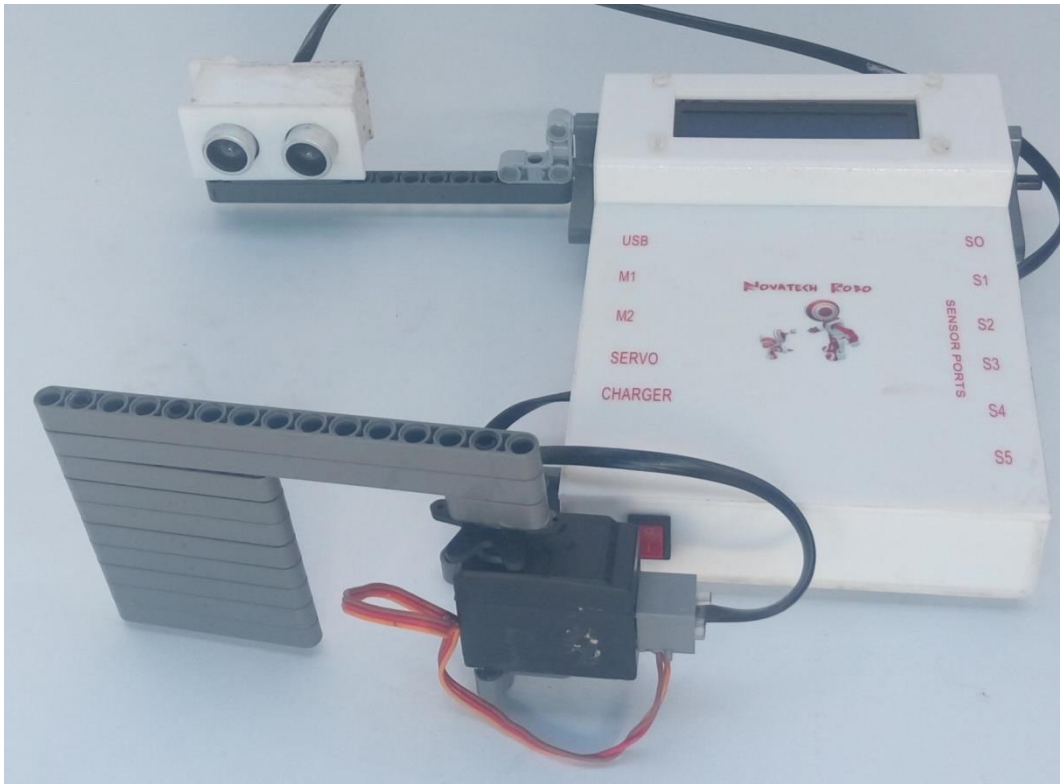
REAL TIME APPLICATIONS:

MAIN COMPONENTS REQUIRED:

- ❖ Novabot Brick
- ❖ Servo Motor
- ❖ Ultrasonic Sensor

BASE BALL BATTER WITH NOVABOT

WORKING PROCEDURE:

❖ Build the Base Ball Batter Nova Bot model as instructed.

❖ Switch it on and upload the program.

❖ Take a ball and move the ball slowly towards the Ultrasonic sensor to detect it and hit.

MOUSETRAP

AIM:

To build and program a Mouse Trap model.

DESCRIPTION:

The Mouse Trap works on basis of Touch Sensor. The bait is kept on the touch sensor. When a mouse touches the bait the Touch sensor is activated which in turns activates the trap.
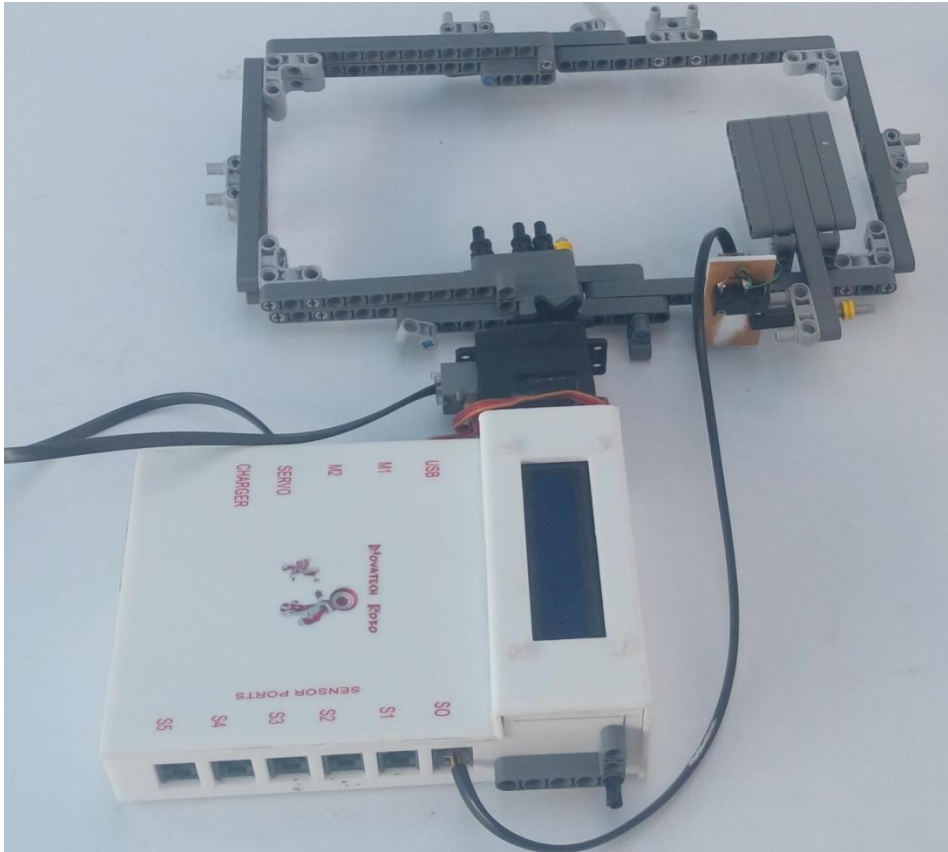
REAL TIME APPLICATIONS:

MAIN COMPONENTS REQUIRED:

- ❖ Novabot Brick
- ❖ Servomotor
- ❖ Touch Sensor

MOUSETRAP MODEL WITH NOVABOT

WORKING PROCEDURE:

- ❖ Set up the trap as directed.
- ❖ Connect the Touch sensor and program the Nova Bot.
- ❖ When the mouse sis on the beam, the touch sensor gets pressed and so the motor arm swings to trap the mouse.

EXPLORER

AIM:

To build and program the Explorer model using Nova Bot.

DESCRIPTION:

Explorer is a simple man made autonomous vehicle, which is capable of sensing its environment, avoid the obstacles and take its path to any type of environment without human assistance. The explorer can be used to acquire the data of unknown or any dangerous places where human beings cannot reach.
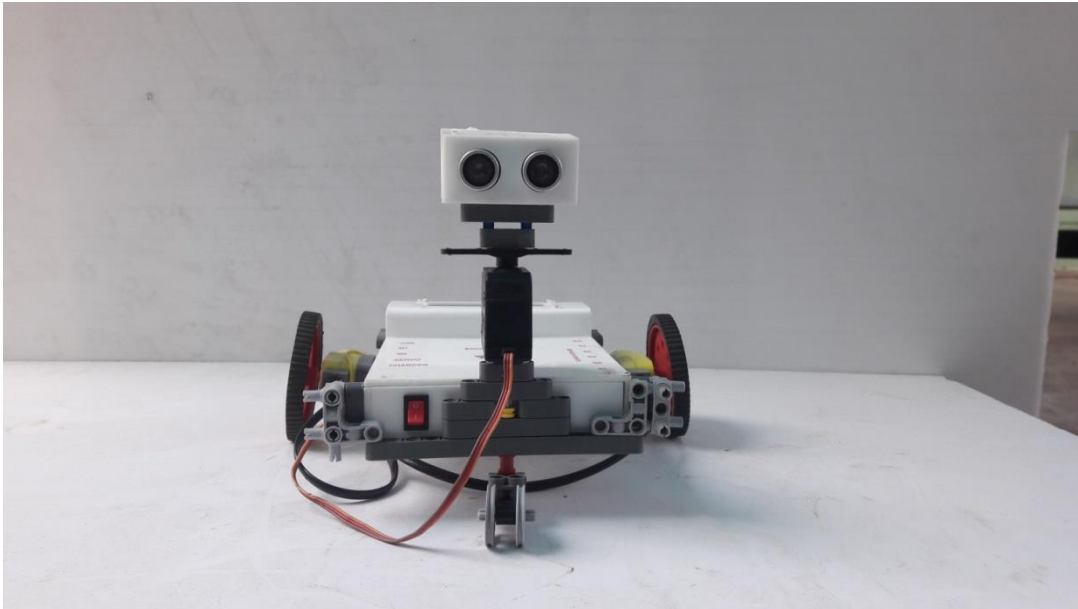
REAL TIME APPLICATIONS:

MAIN COMPONENTS REQUIRED:

- ❖ Nova Bot Brick
- ❖ DC Motors
- ❖ Servo Motors
- ❖ Ultrasonic Sensor

EXPLORER MODEL WITH NOVABOT

WORKING PROCEDURE:

- ❖ Build the explorer model.
- ❖ Switch on the Nova Bot and upload the program.
- ❖ Watch the model to know how it works.

SPIN ART

AIM:

To build a fast spinning motor to spin a paper on a flat surface where you can place a pen to draw circles with different circumference.

DESCRIPTION:

Spin Art model consists of a fast spinning motor used to spin paper on a flat surface where you can use pens to create your own spin art creations. The program allows you to adjust the motor speed from very slow to very fast to create and see your art at different speeds.
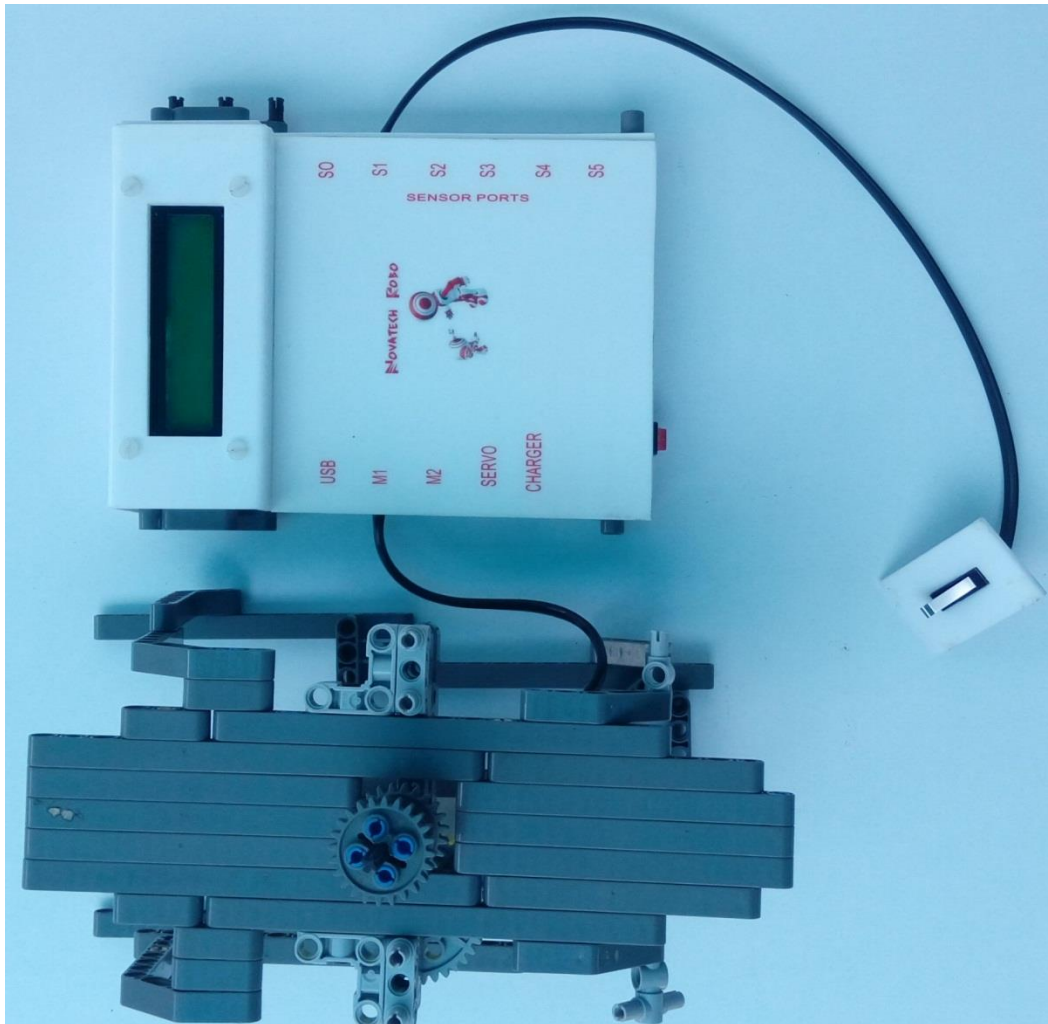
REAL TIME APPLICATIONS:

MAIN COMPONENTS REQUIRED:

- ❖ Nova Bot Brick
- ❖ DC Motor
- ❖ Touch Sensor

SPINART WITH NOVABOT

WORKING PROCEDURE:

- ❖ Build the Spin Art.
- ❖ Switch the Nova Bot on and upload the program.
- ❖ Watch the model Spin.

THREE-SPEED TRANSMISSION

AIM:

To build and program a Three-Speed Transmission model using Nova Bot.

DESCRIPTION:

This transmission has three different gear ratios that you can shift through using the stick shift lever. The motor transfers power through the clutch and transmission to a set of three spinning tires. As you shift through the different gears, you will see the resulting difference in speed of the spinning tires (slow, medium, and fast).
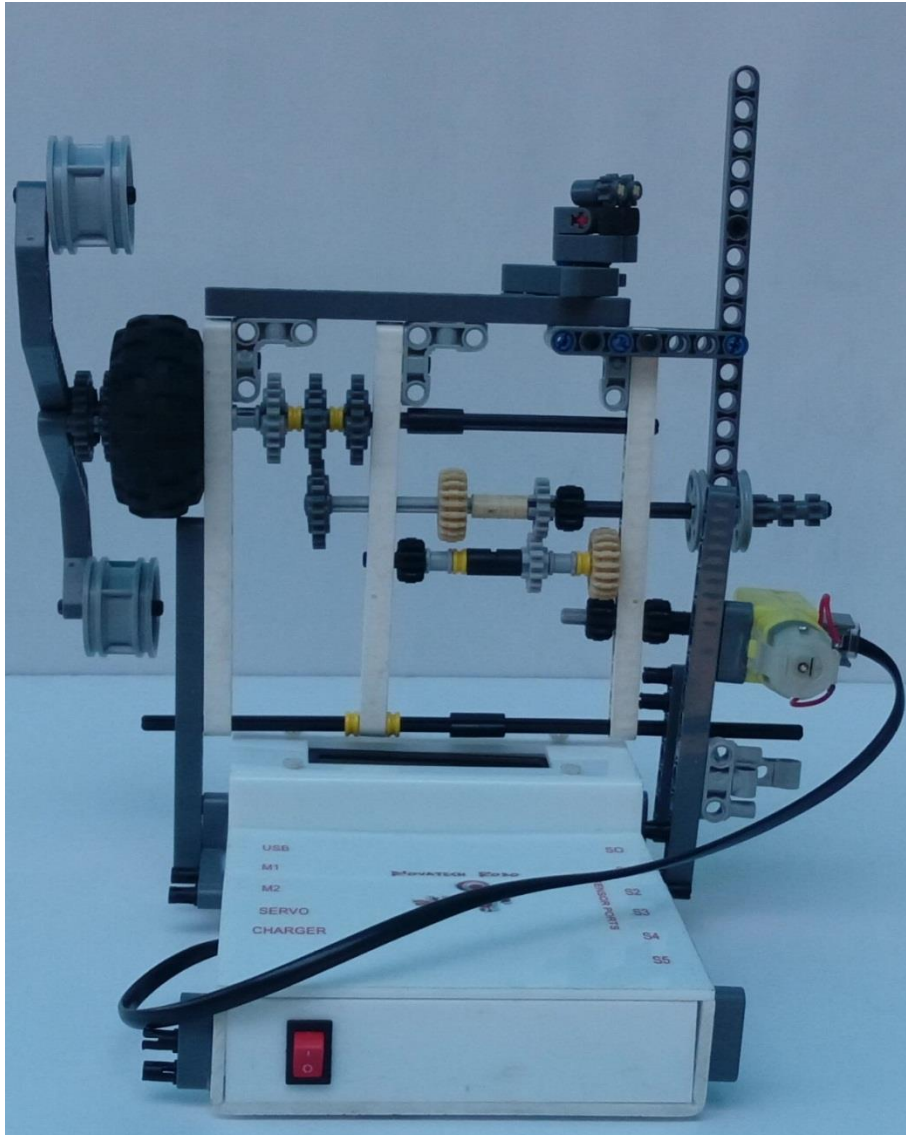
REALTIME APPLICATION:
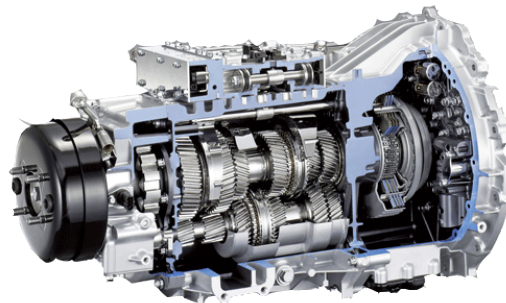
MAIN COMPONENTS REQUIRED:

- ❖ Nova Bot Brick
- ❖ DC Motors
- ❖ Touch Sensors

THREE-SPEED TRANSMISSION USING NOVABOT

WORKING PROCEDURE:

- ❖ Build the Three-Speed Transmission model.
- ❖ Switch on the Novabot brick and upload the program.
- ❖ Press the Touch Sensor and watch the speed transmission
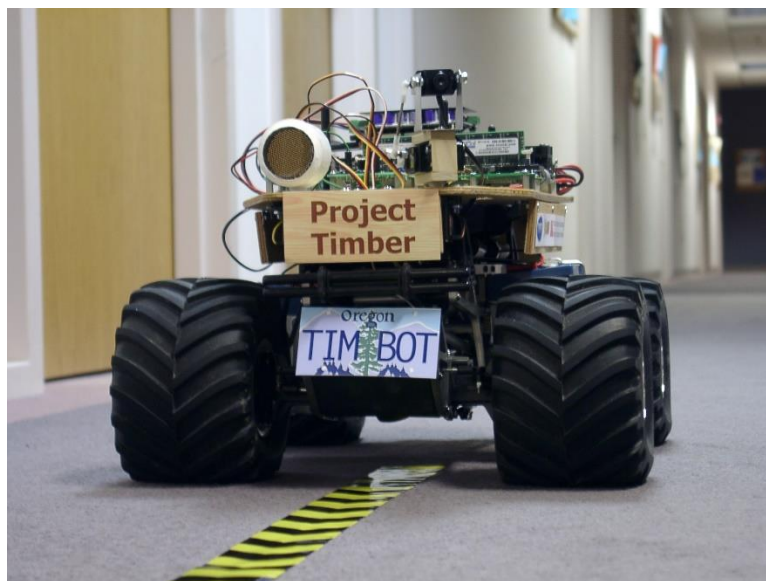
LINE FOLLOWER

AIM:

To build and program the Line Follower model using Nova Bot.

DESCRIPTION:

LINE FOLLOWER is a machine that can follow a path. The path can be visible like a black line on white surface (or vice versa) or it can be invisible like a magnetic field.
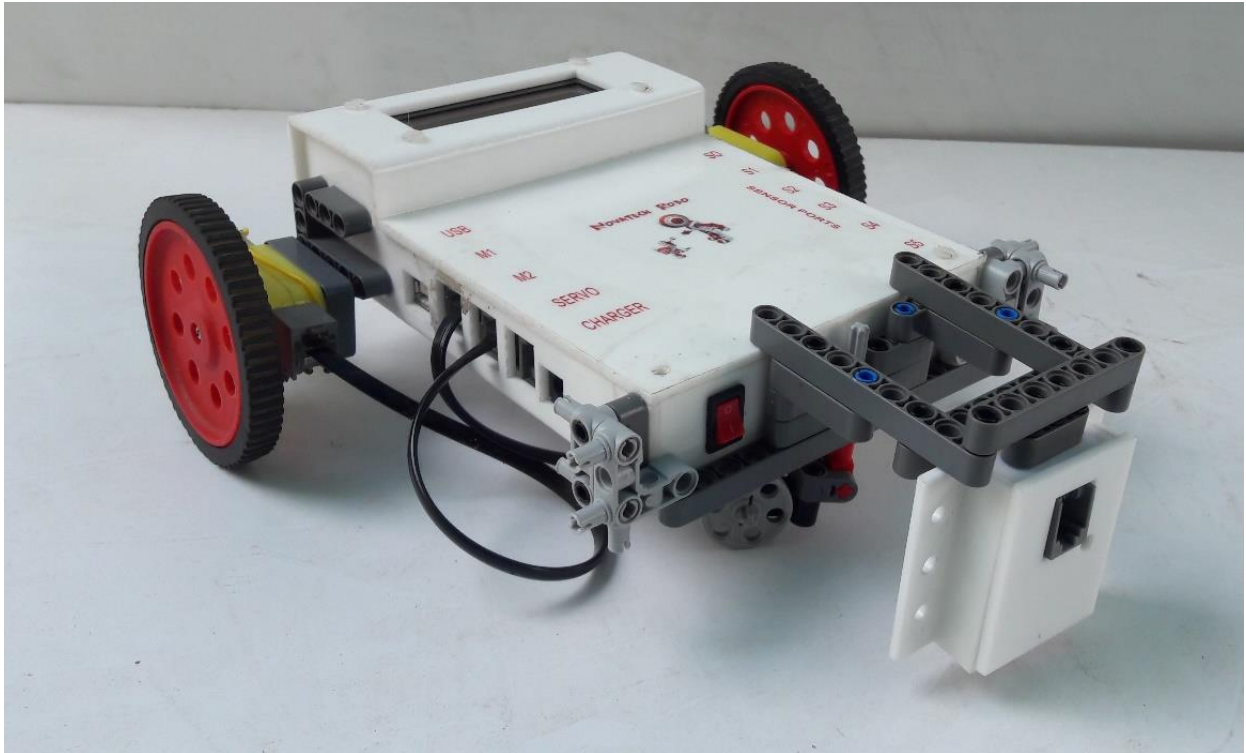
REAL TIME APPLICATIONS:

MAIN COMPONENTS REQUIRED:

- ❖ Novabot Brick
- ❖ DC Motor
- ❖ Light Sensor

LINE FOLLOWER WITH NOVABOT BRICK

WORKING PROCEDURE:

- ❖ Build a LINE FOLLOWER model.
- ❖ Switch ON the Novabot Brick and upload the program.
- ❖ If it is not working properly calibrate the sensors.
- ❖ Watch the model following the line.

BALL ROLLER COASTER

AIM:

To build and program the Ball Roller Coaster model using Nova Bot.

DESCRIPTION:

Ball Roller Coaster is an autonomous machine which demonstrates the working of a roller coaster ride. When an object is lifted above the surface it gains some potential energy due to gravitational pull. This energy can be converted into kinetic energy to move the object. Here the object is the ball and a servo motor is used to lift the ball to a certain height.
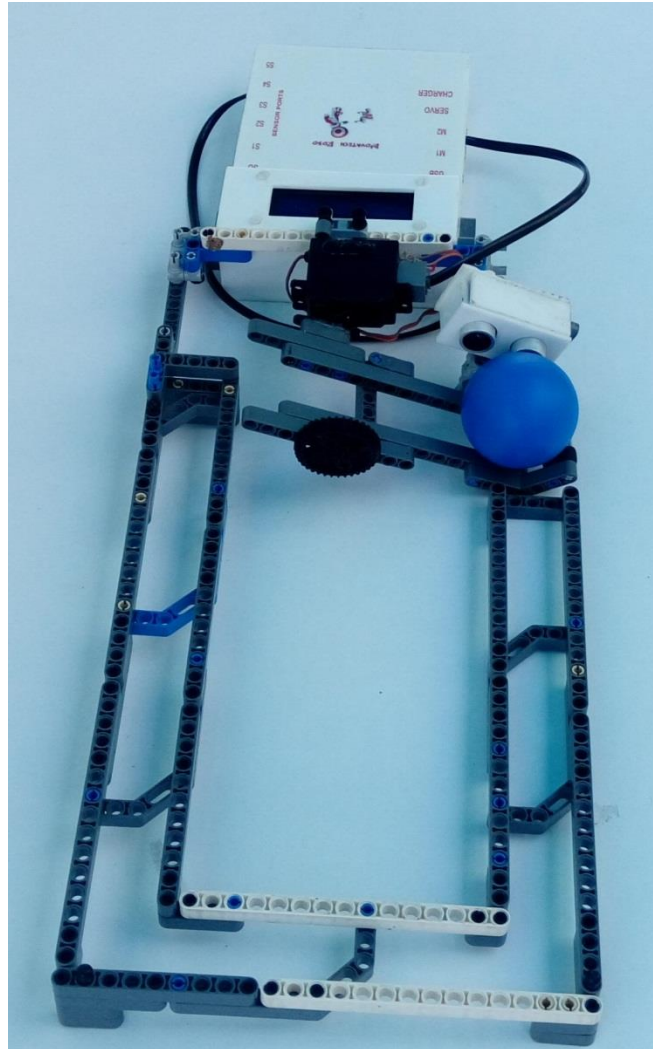
REAL TIME APPLICATIONS:

MAIN COMPONENTS REQUIRED:
- ❖ Novabot Brick
- ❖ Servo Motor
- ❖ Ultrasonic Sensor

BALL ROLLER COASTER WITH NOVABOT BRICK

WORKING PROCEDURE:

- ❖ Build a BALL ROLLER COASTER model.
- ❖ Switch ON the Novabot Brick and upload the program.
- ❖ If it is not working properly calibrate the sensors.
- ❖ Watch the ball running along track and lifted by the servo.
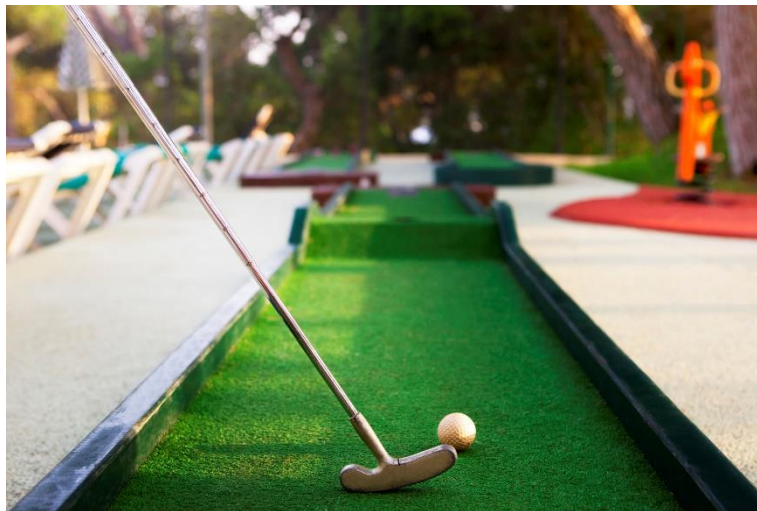- ❖

MINI GOLF

AIM:

To build and program the Mini Golf model using Nova Bot.

DESCRIPTION:

Mini Golf is a machine that hits the golf with a batter controlled by a touch sensor. The batter will hit only when the touch sensor is pressed. The batter is connected to the servomotor, which moves the batter.
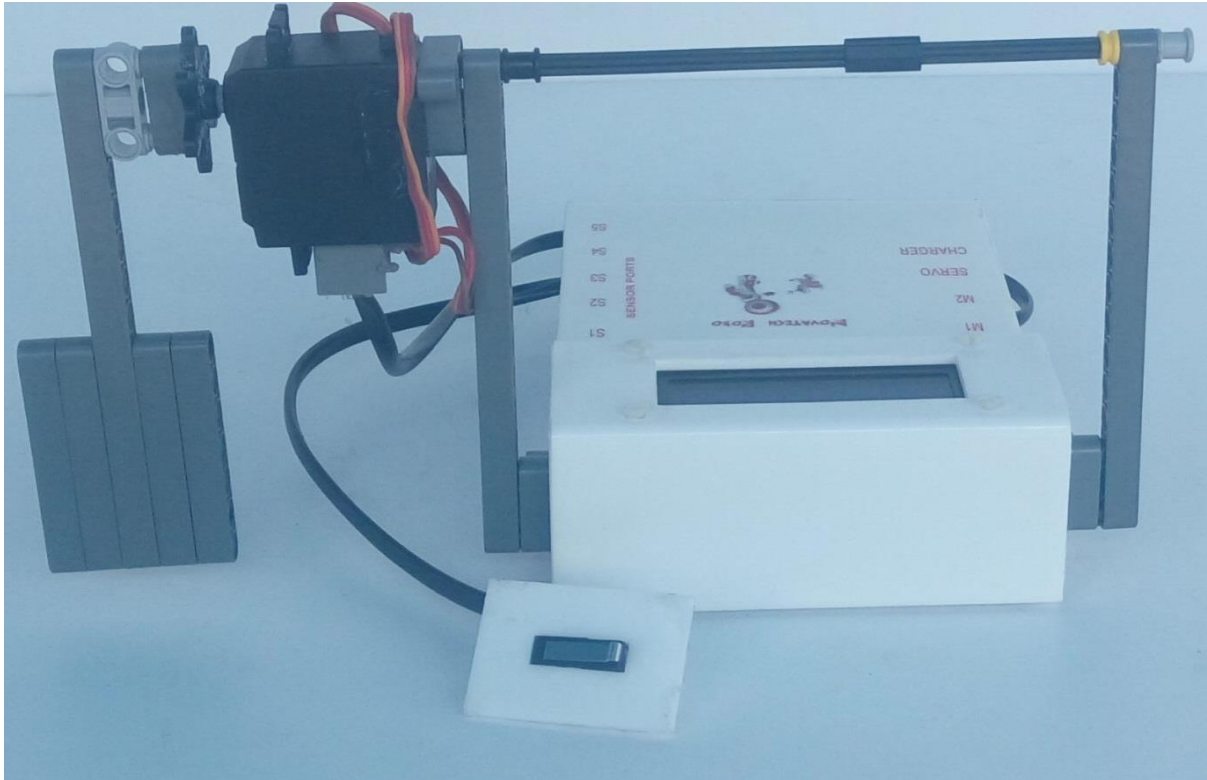
REAL TIME APPLICATIONS:

MAIN COMPONENTS REQUIRED:

 ❖ Novabot Brick
 ❖ Servo Motor
 ❖ Touch Sensor

MINI GOLF WITH NOVABOT BRICK

WORKING PROCEDURE:

❖ Build a Mini Golf model.

❖ Switch ON the Novabot Brick and upload the program.

❖ If it is not working properly calibrate the sensors.

❖ Watch the model hit the ball when touch sensor is pressed.

POWER SAW

AIM:

To build and program the Power Saw model using Nova Bot.

DESCRIPTION:

Power Saw is a machine that rotates the blade by DC Motor controlled by a touch sensor. The motors speed is increased by using gears and is transferred to blade. In this model the effect gear ratio is demonstrated.
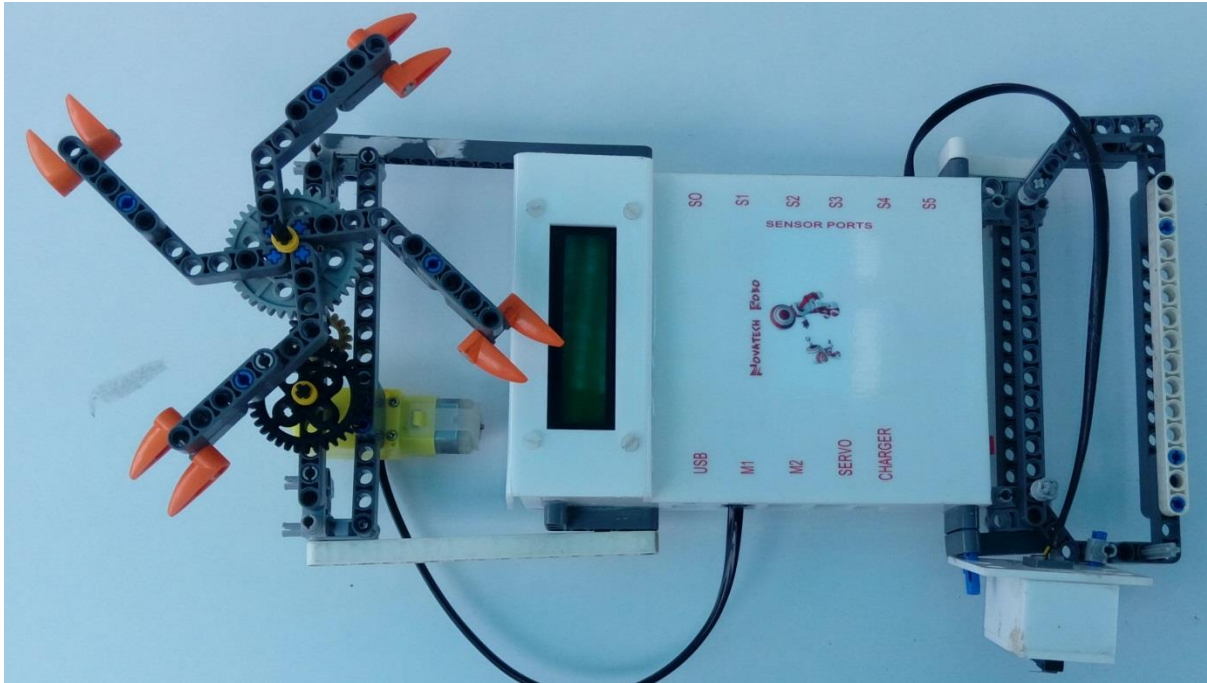
REAL TIME APPLICATIONS:

MAIN COMPONENTS REQUIRED:

- ❖ Novabot Brick
- ❖ DC Motor
- ❖ Touch Sensor

POWER SAW WITH NOVABOT BRICK

WORKING PROCEDURE:

- ❖ Build a POWER SAW model.
- ❖ Switch ON the Novabot Brick and upload the program.
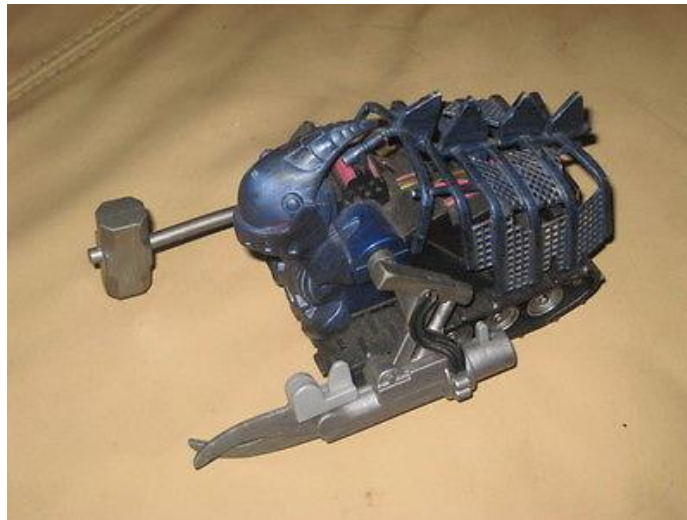- ❖ Observe the speed of blade and each gear.

HAMMER CAR

AIM:

To build and program the Hammer Car model using Nova Bot.

DESCRIPTION:

Hammer Car is a machine that hits any object in front of it. The car driven by two DC motors and the hammer by a servo motor. The ultrasonic sensors detects any object in front of it.
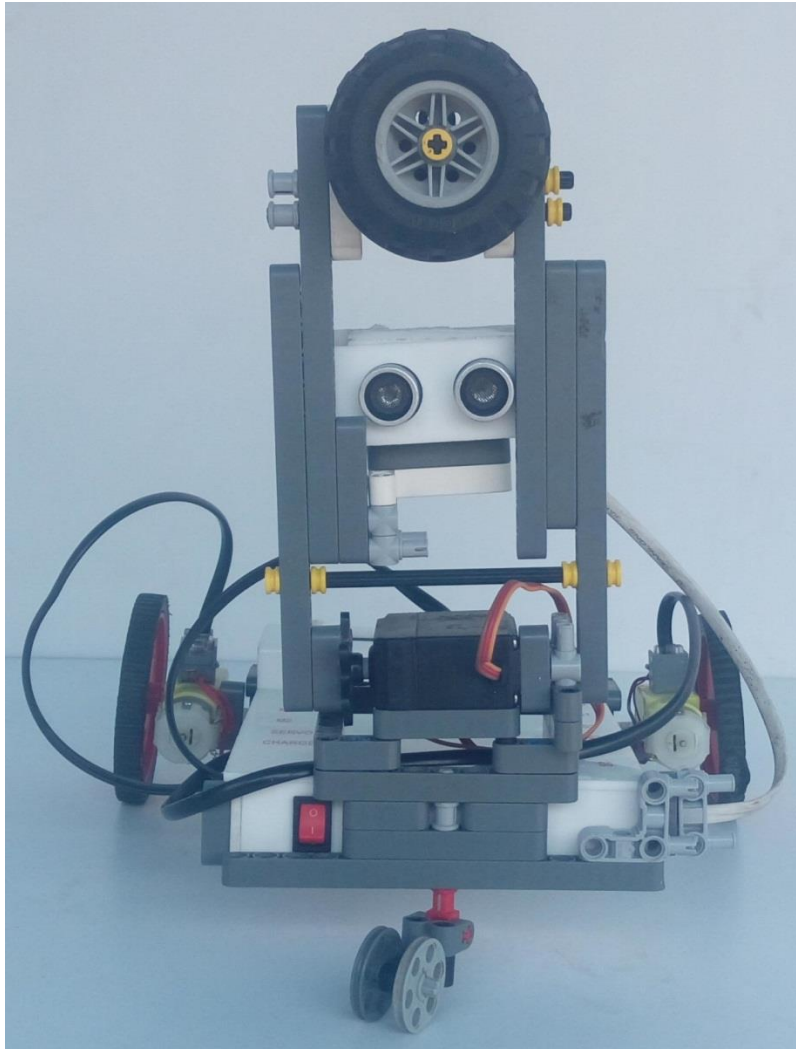
REAL TIME APPLICATIONS:

MAIN COMPONENTS REQUIRED:

❖ Novabot Brick

❖ DC Motors

❖ Servo Motor

❖ Ultrasonic Sensor

HAMMER CAR WITH NOVABOT BRICK

WORKING PROCEDURE:

- ❖ Build a Hammer Car model.
- ❖ Switch ON the Novabot Brick and upload the program.
- ❖ Observe the car hitting object coming in front of it.