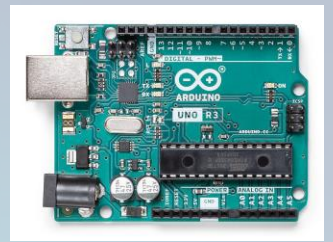
WELCOME TO MY PRESENTATION

ROBOTICS

2

- Robotics is the branch of engineering and technology that deals with the design, construction, operation, and use of robots. A robot is a machine that is capable of performing a variety of tasks autonomously, or with minimal human intervention. Robots can be designed to perform a wide range of functions, from simple tasks like vacuuming a room to complex operations like assembling cars in a factory.
- Robotics draws on a wide range of fields, including mechanical engineering, electrical engineering, computer science, and artificial intelligence. Robotics is a rapidly developing field that is constantly pushing the boundaries of what robots can do, and is having a major impact on many different industries, from manufacturing to healthcare to space exploration.

MEET THE CONTROLLER, SENSOR, ACTUATORS AND MOTOR DRIVER



MICROCONTROLLER

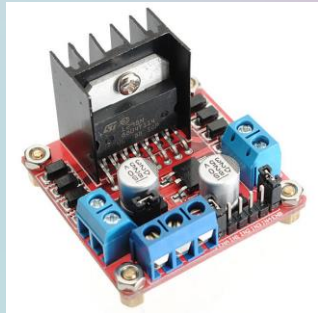
THE Arduino

SENSOR

THE Ultrasonic Sensors

ACTUATOR

THE servo motor

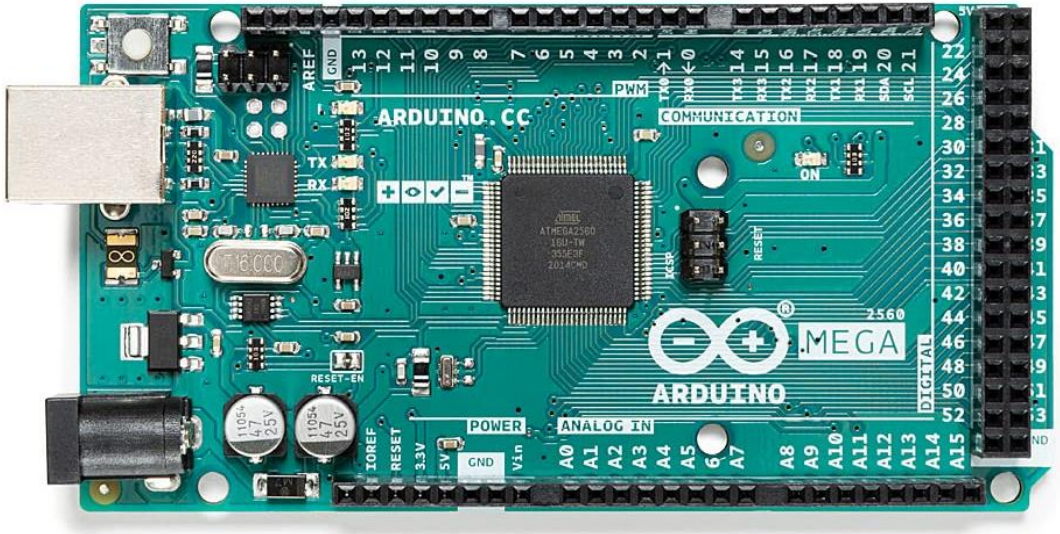


MOTOR DRIVER

L298N

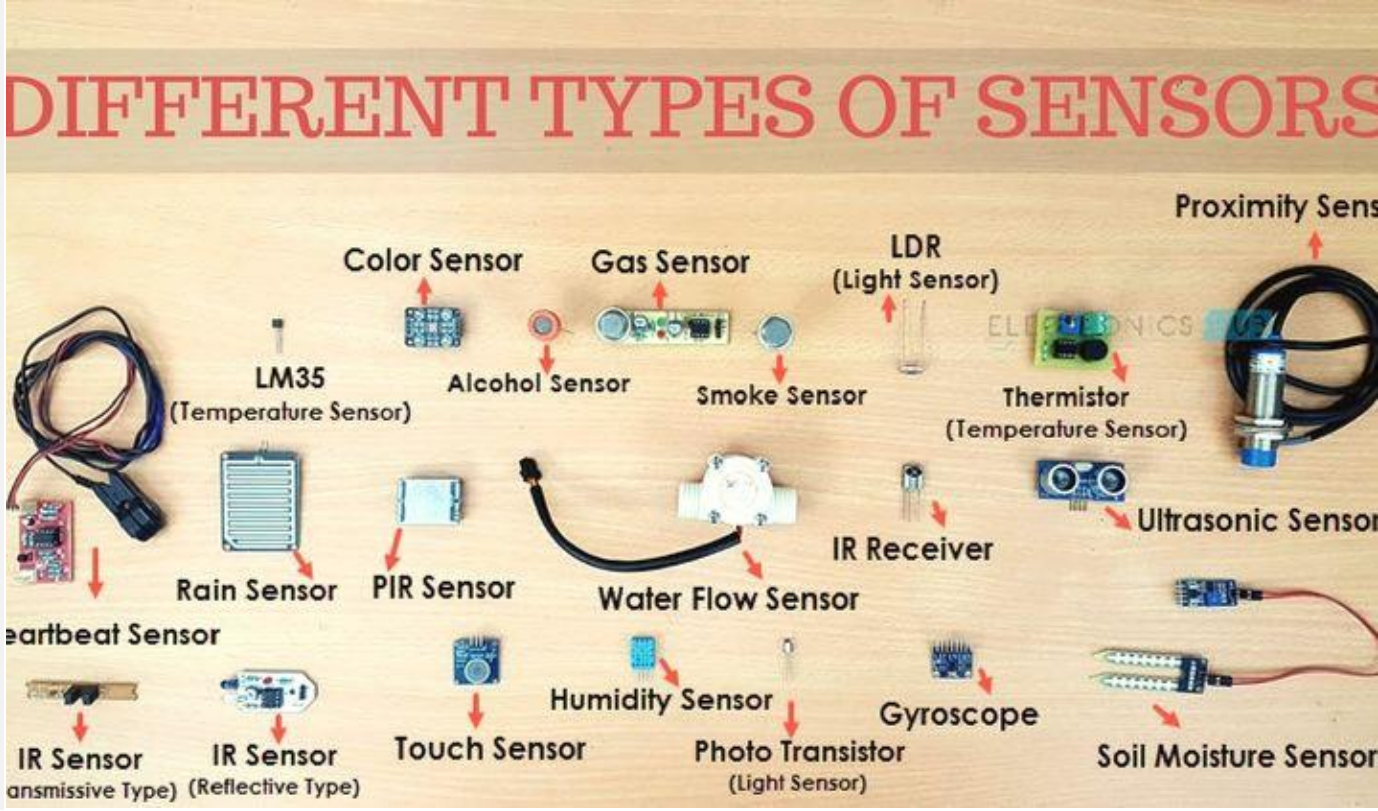
WHAT IS ARDUINO?

- Arduino is an open-source electronics platform based on easy-to-use hardware and software. It's intended for anyone making interactive projects.



ARDUINO MEGA

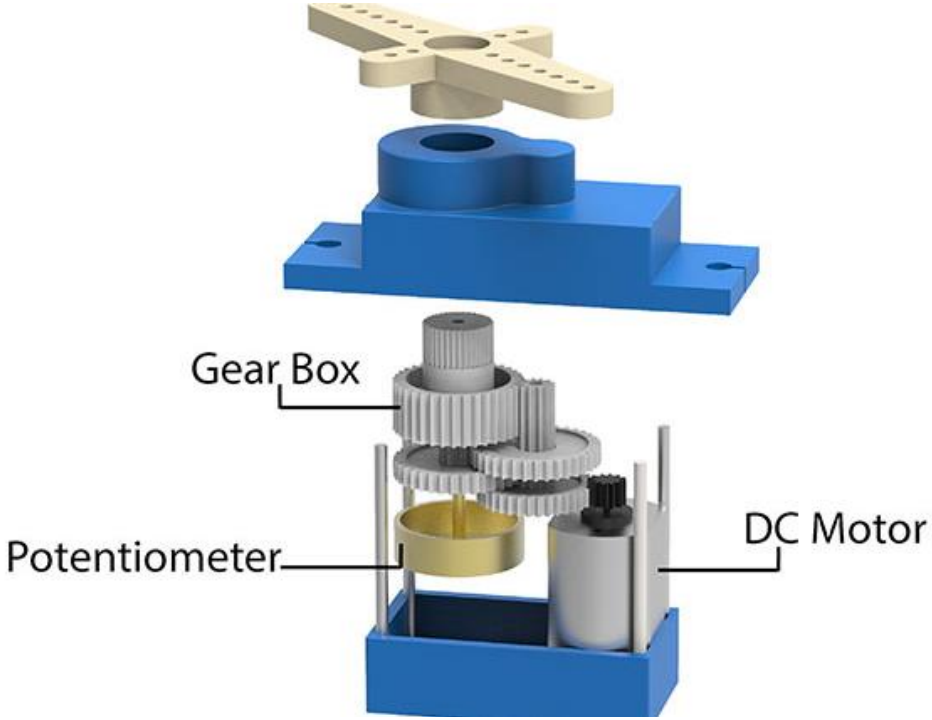
WHAT IS SENSOR?



- A sensor is a device that detects or measures a physical quantity and converts it into an electronic signal that can be read and analyzed by an electronic system. Sensors are used in a wide range of applications, from simple everyday devices such as touchscreens and temperature sensors to complex scientific instruments and industrial control systems.
- Sensors can detect a wide variety of physical quantities, including temperature, pressure, light, sound, motion, and chemical substances, among others. They are typically designed to operate in a specific range of conditions and have specific accuracy and precision characteristics.
- Sensors are used in many fields, including automotive, medical, aerospace, environmental monitoring, industrial control, and home automation, among others. They play a critical role in the development of new technologies and scientific discoveries, and are an essential component of many modern electronic systems.

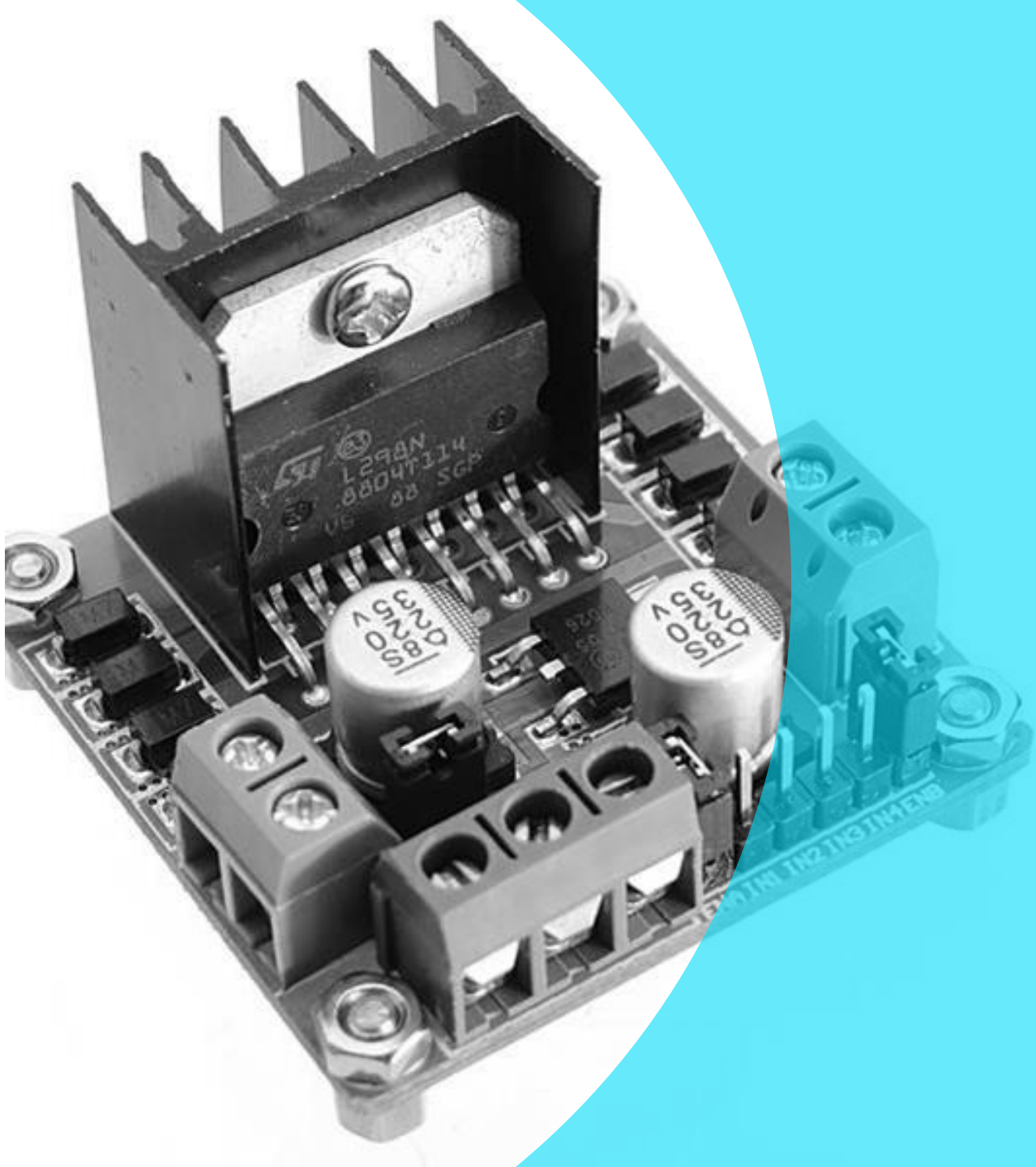
WHAT IS SERVO MOTOR?

- A servomotor (or servo motor) is **a rotary actuator or linear actuator that allows for precise control of angular or linear position, velocity, and acceleration**.



MOTOR DRIVER?

- From the name, a motor driver means a device that drives motors. However, motor driver chips can't go an engine without a microcontroller.
- A motor driver showcases itself as an interface between the motor and the microcontroller. The reason is that the microcontroller and the motor work on different ranges of voltages. The engine will use up a higher current level than the microcontroller.
- You require a motor driver module when connecting two devices that operate under different current levels to a power supply voltage. In this case, a motor acts as a third device that steps up or steps down the voltage supply.
- The majority of motor drivers in the market now are in the form of ICs. There are different driver motors; hence they have other characteristics. You then connect these motor driver ICs to the motor controller through an H bridge circuit.



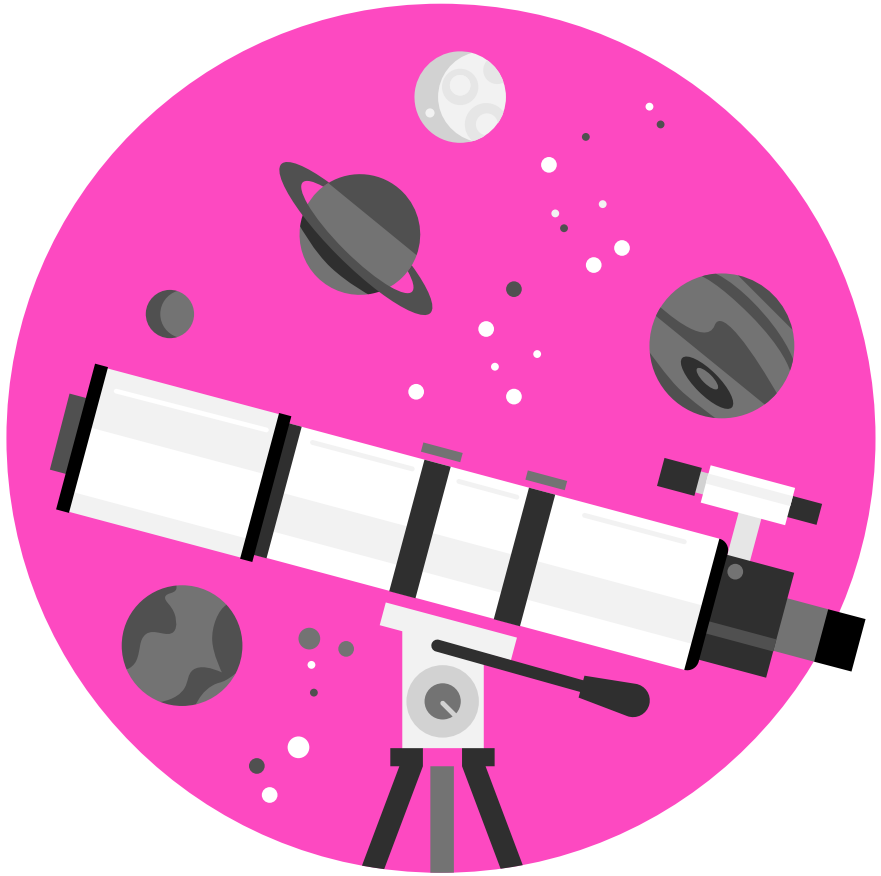
TRASH COLLECTOR ROBOT

- A trash collector robot is a type of robot designed to autonomously or semi-autonomously collect trash or litter from an area. These robots are typically equipped with various sensors, such as cameras, lidar, or ultrasonic sensors, to detect and locate trash or litter in the environment. They may also include manipulators, such as grippers or claws, to pick up and collect the trash.

- Trash collector robots can be designed for use in a variety of settings, such as public areas, parks, or industrial sites, and can help to improve the cleanliness of these areas. They can operate continuously or intermittently, depending on the requirements of the environment.

- Some trash collector robots are controlled remotely by a human operator, while others are fully autonomous and can operate without any human intervention. The development of trash collector robots is part of a larger trend towards using robotics and automation to perform tasks that are dirty, dull, or dangerous for humans.

THANK YOU



- Kayes Ahmed Plabon
- Nurul Islam Noman