**COMPONENTS USED -:**

* Ultrasonic Sensor
* Infrared Sensor
* L298N Motor Drivers
* Li-Po Batteries

Ultrasonic sensors are the sensors are the sensors which are used to measure the distance from the source , they emit the waves which travel with the speed of sound and have the frequency of ultrasonic waves. They have four pins in total Vcc which is voltage input , GND which is ground , Trig which is the trigger pin thus it transmits the wave and Echo which is the used to receive the wave .Now when the waves are emitted through the sensor from the transmitter of the sensor by sending a high signal to the trigger pin of the sensor. After this the waves are received by the receiver of the sensor by sending high signal to the echo pin. Hence we get the time taken by the wave to travel and comeback after reflecting back from the object. By using the formula of speed =distance/time , since we know the speed of wave and the time covered which is total time travelled/2, thus we obtain the distance between the objects and the sensors. We are using these sensors to detect the walls.

Infrared Sensors these are the sensors which emit infrared waves, they contain one infrared emitter and one receiver. Now as we know every colour has it’s own absorption value and it’s own reflecting value. And Black Colour absorbs all light whereas the white light reflects all. Thus when this sensor is placed on the black it gives low value thus detecting black colour for every other it is high. Thus this sensor is used to detect the black line and thus changing from the autonomous code to manual mode.

MOTOR DRIVERS-: Dhruv Bhaiya Part-…

Li Po batteries are used to supply power to the motor drivers and to all the other components except Arduino. We are using 12 V Li Po batteries to power all the components. LiPo batteries are the compact batteries having high capacities as compared to Lead Acid Batteries or any other batteries thus using them was considered more appropriate than any other batteries.