Deliversity

An Arduino project

The Team

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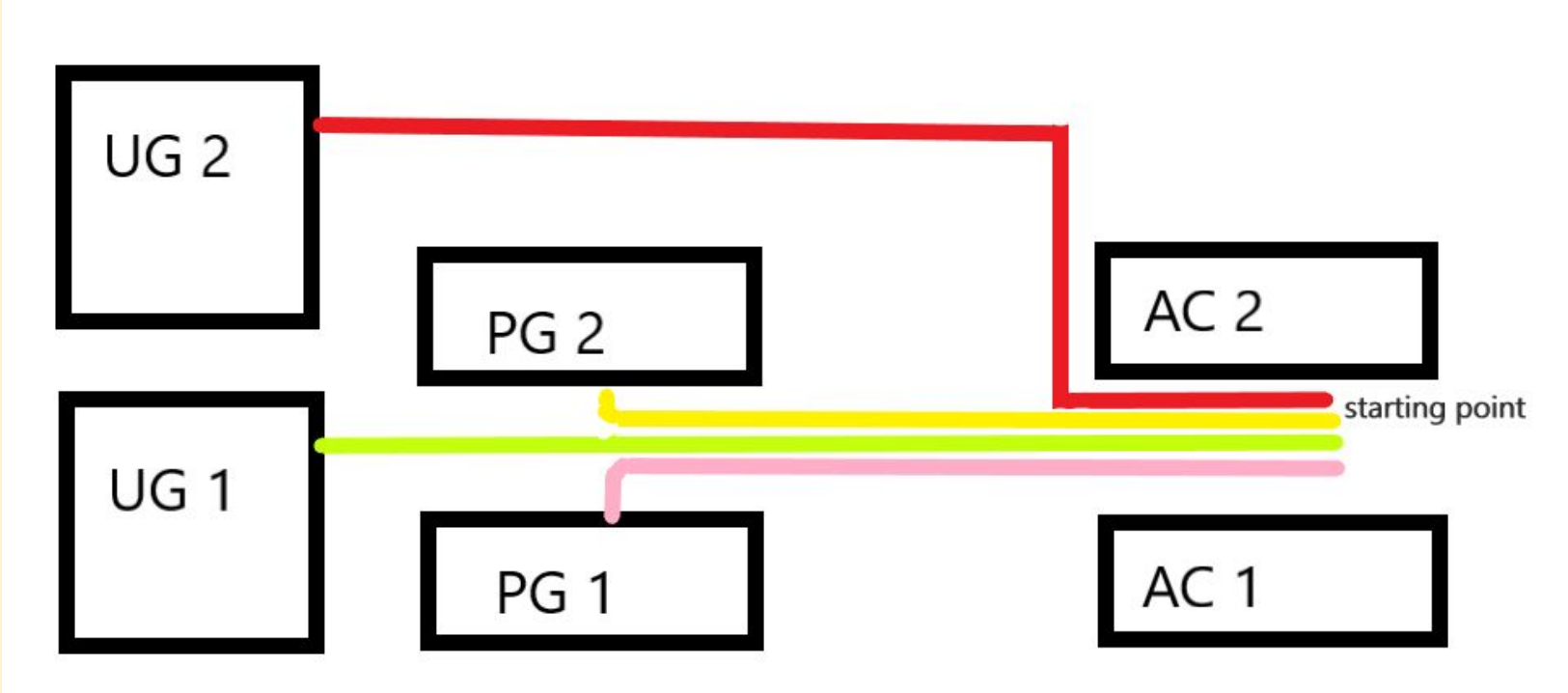
Aim of the Project

Our idea is to create a device that can help in the delivery of goods by following a particular predefined path in a localized environment successfully to its correct recipient without damage to the goods being delivered.

For this we plan to integrate these three applications:

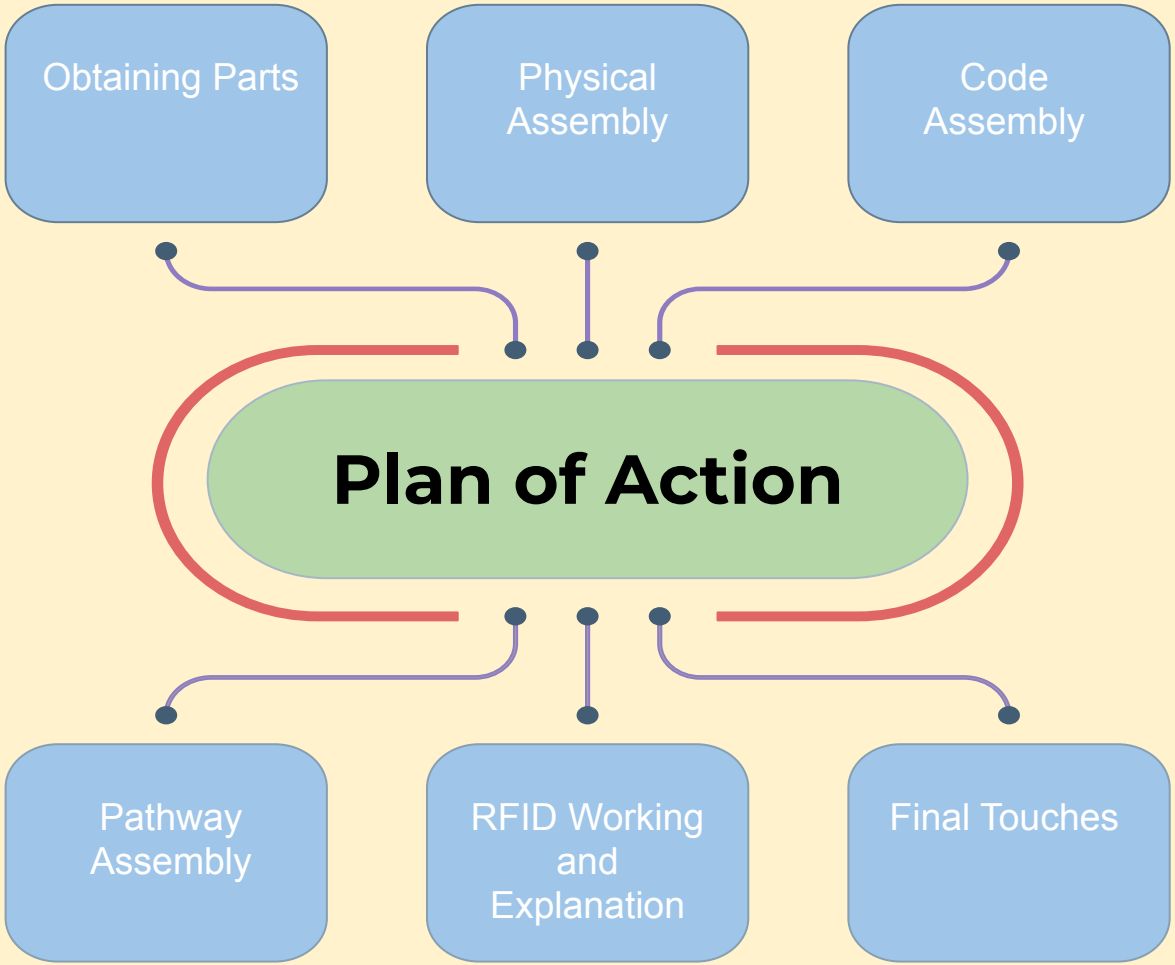
- Line Follower Bot
- Obstacle Detection
- RFID Based Attendance System

Application Scenario @ NU



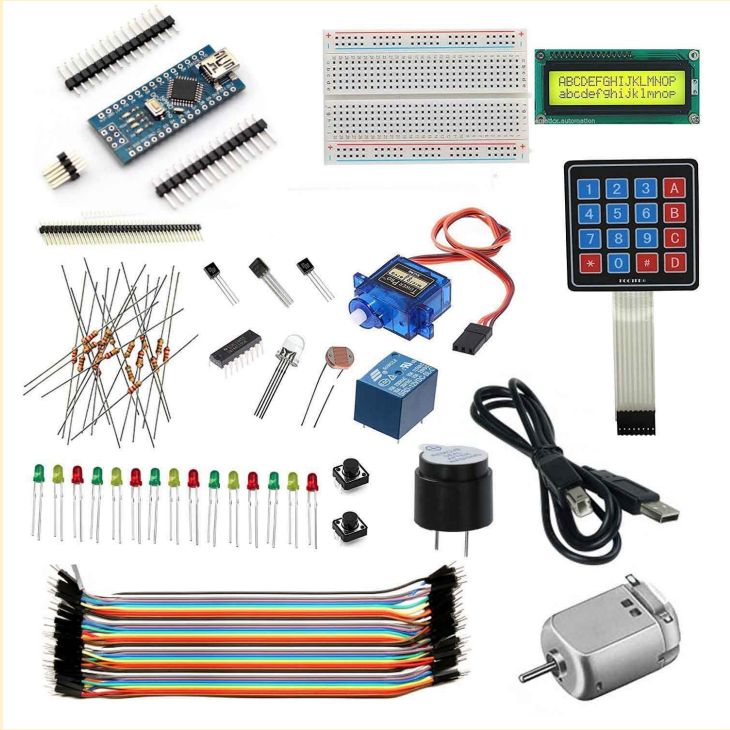
STEPS (HYPOTHETICAL):

- Get the product from AC 2 Reception.
- Bot will be placed on the specified track according to the destination of delivery, say UG 2.
- The bot will follow the UG2 line. Suppose there is an obstacle the bot will stop so as to avoid any damage to the product. (LINE FOLLOWER AND OBSTACLE DETECTION)
- When the product reaches the destination, the student will do the entry into smart attendance. (SMART ATTENDANCE)
- If the product is not reached within a specified time* , the Deliversity team will ensure for the product safety.
- * Time to reach the destination will be based on the testing phase.


Obtaining Parts
Physical Assembly
Code Assembly
Plan of Action
Pathway Assembly
RFID Working and Explanation
Final Touches

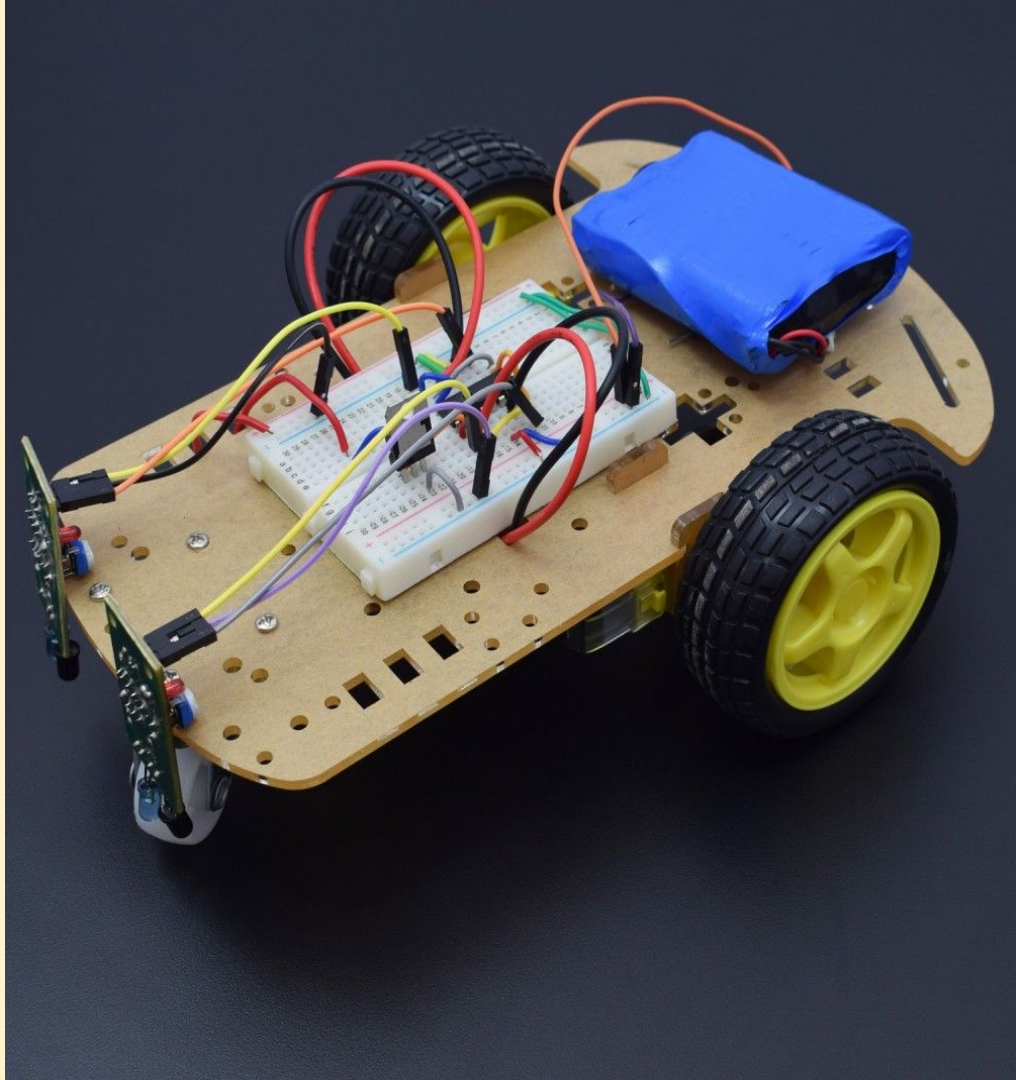
Components Required

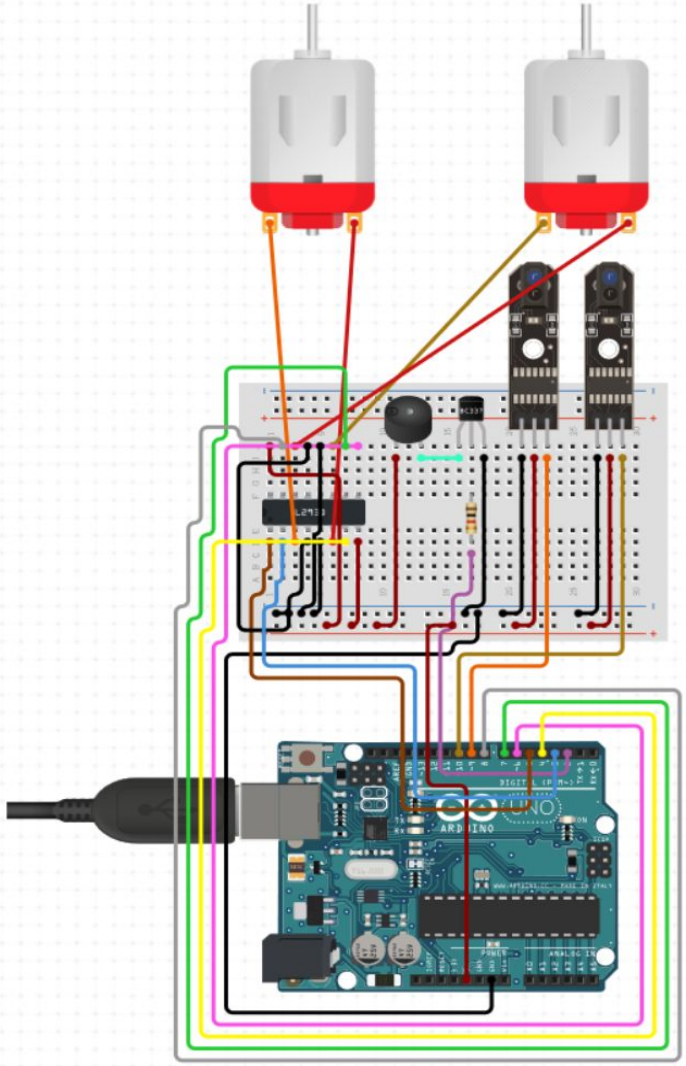
- One Arduino Mega or Two Arduino Uno
- Two DC Motors
- L293D Motor Driver with Dual Standard DC Motors (Geared)
- RTC - Real Time Clock
- Micro SD module
- RFID Card Reader
- Ultrasonic Sensor
- IR Line Follower Sensors (Two)
- Buzzer
- Resistors and Transistor
- Jumper Wires
- Two large wheels and Body Parts
- Voltage sources (3.3V and 5V)



Line Follower

- Implementation of Line Follower
- Components required in building the line follower
- Working of the line follower
- Coding part for the line follower





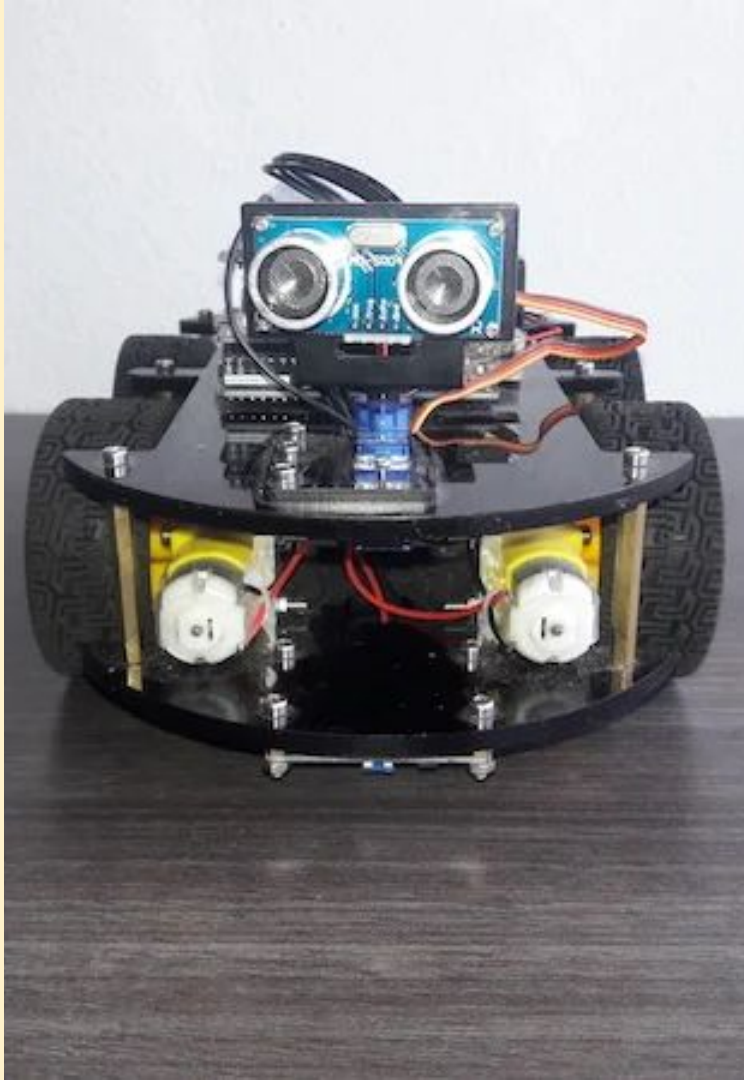
Line Follower working circuit

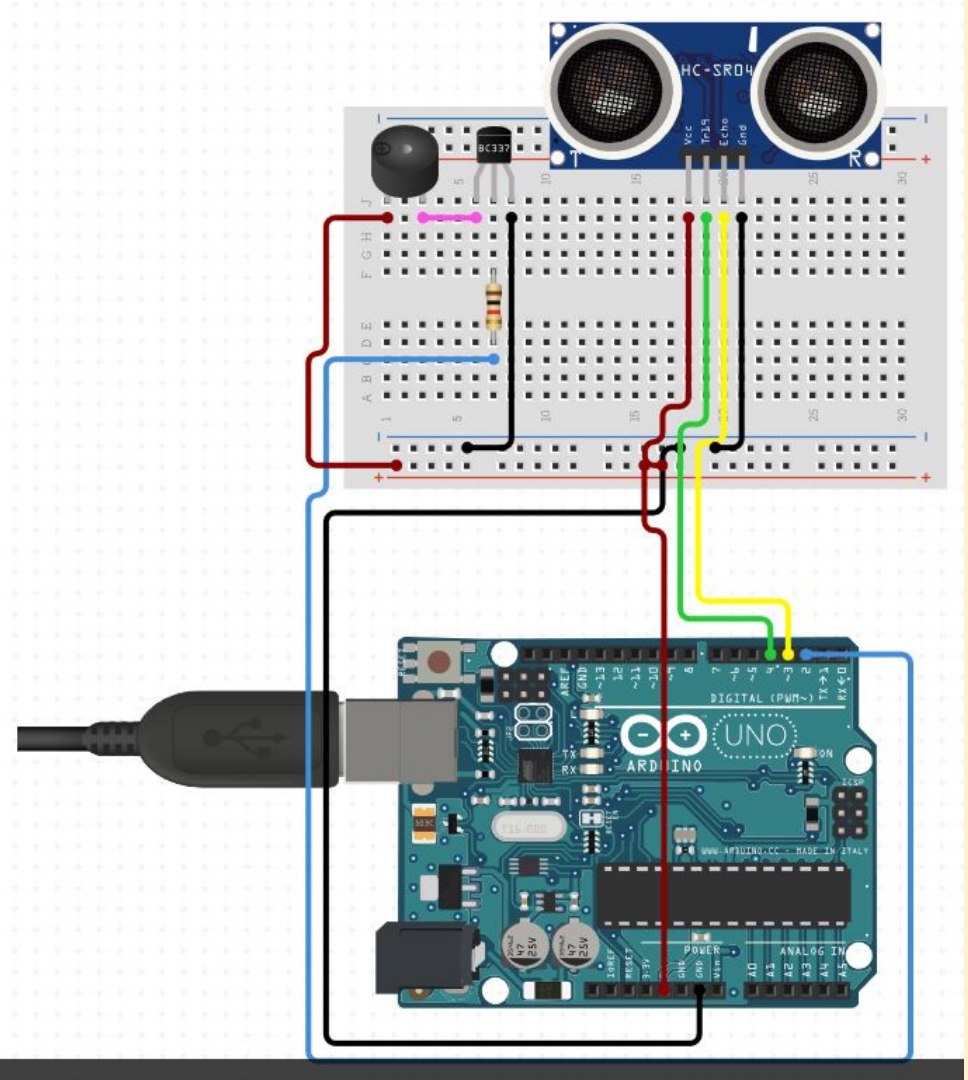
Components used in this circuit are:

- IR Line Follower Sensors
- DC motors (L293D Motor Driver)
- Arduino UNO
- Jumper wires
- Breadboard

Obstacle Detection

- Implementation of Obstacle Detector
- Components required in building the obstacle detection bot
- Working of the obstacle detector
- Coding part for the obstacle detection



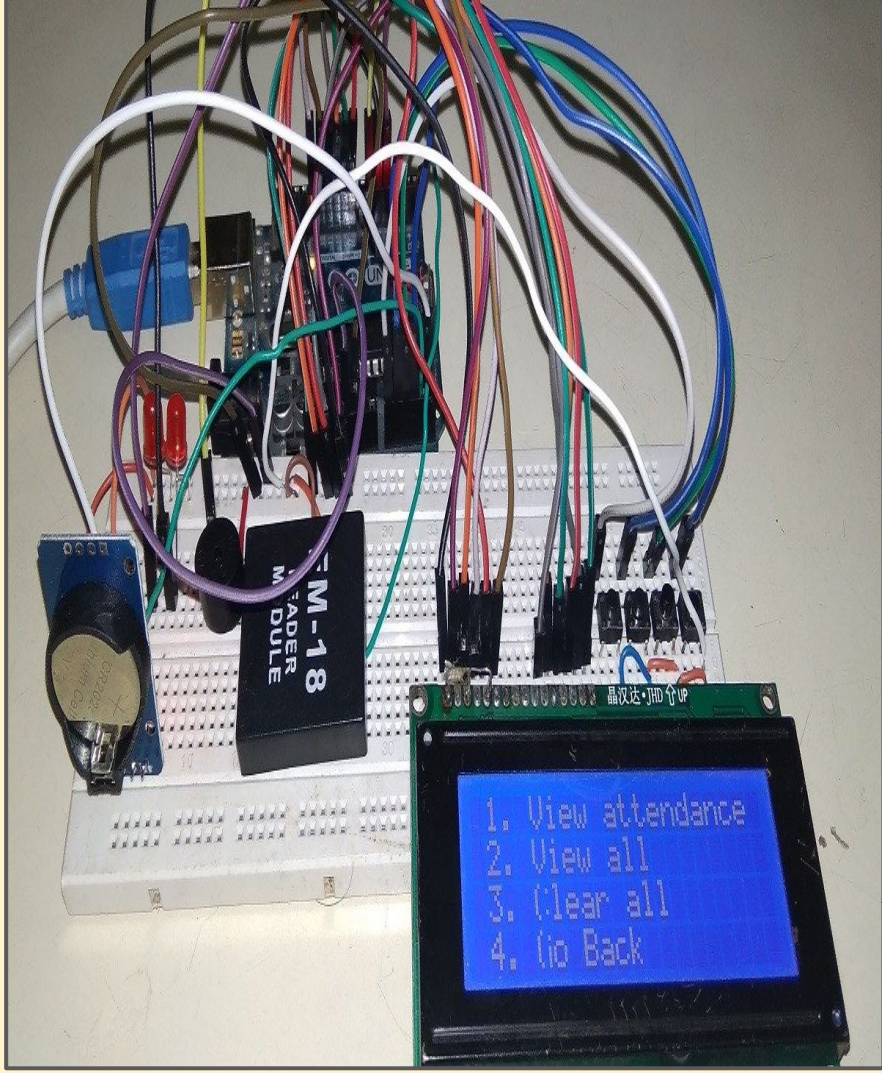


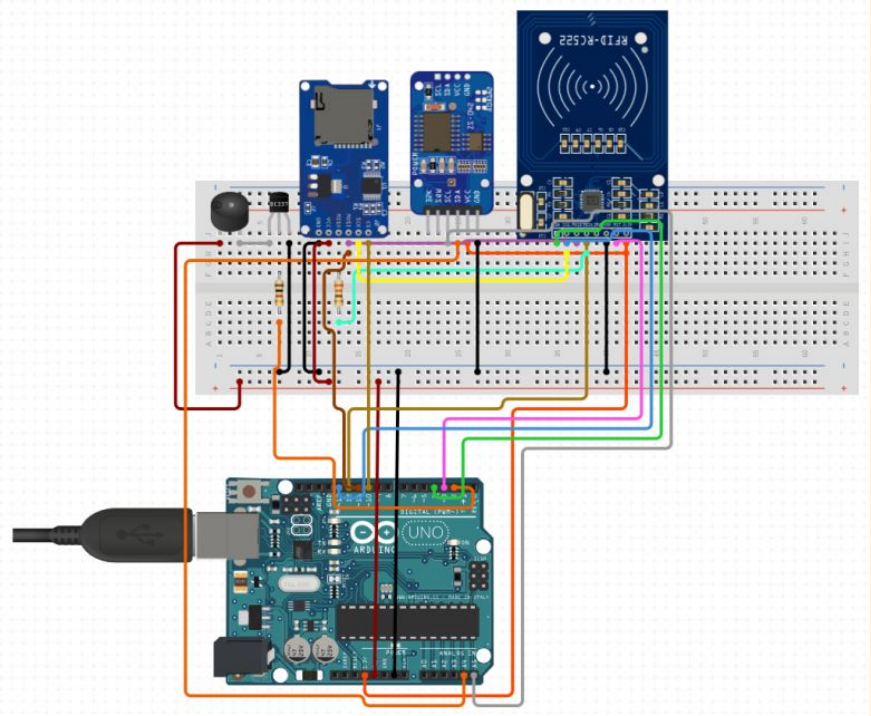
Ultrasonic Detector working circuit

- Buzzer
- Arduino UNO
- Ultrasonic Sensor

Smart Attendance

- Implementation of RFID based Smart Attendance system
- Components required in building the smart attendance bot
- Working of the RFID based smart attendance bot
- Coding part for the smart attendance

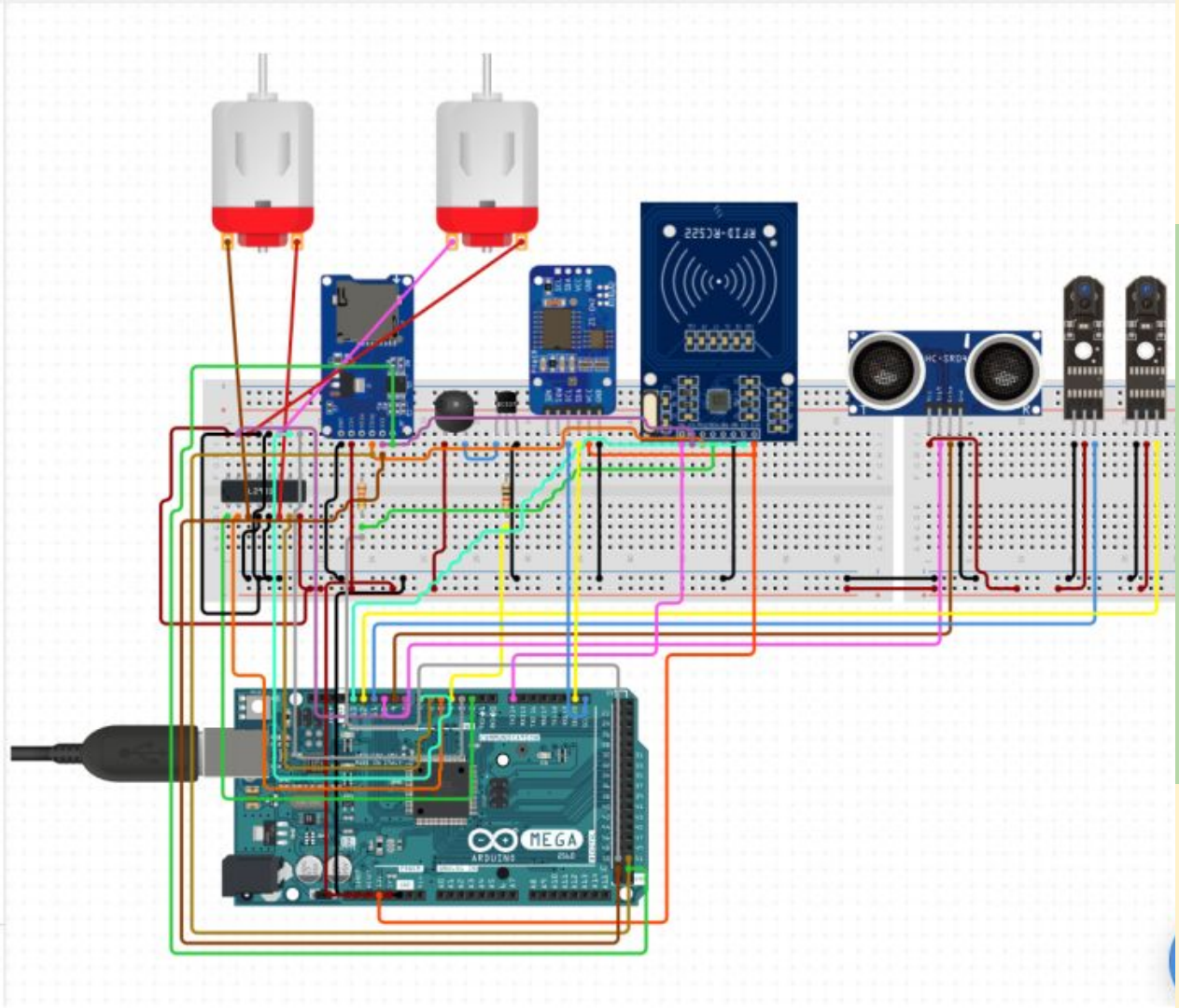




Smart Attendance Working Circuit

Components of the Smart Attendance bot

- Arduino Uno Board
- DS3231 or DS1307 RTC Module
- EM-18 RFID reader
- SD card module
- Buzzer

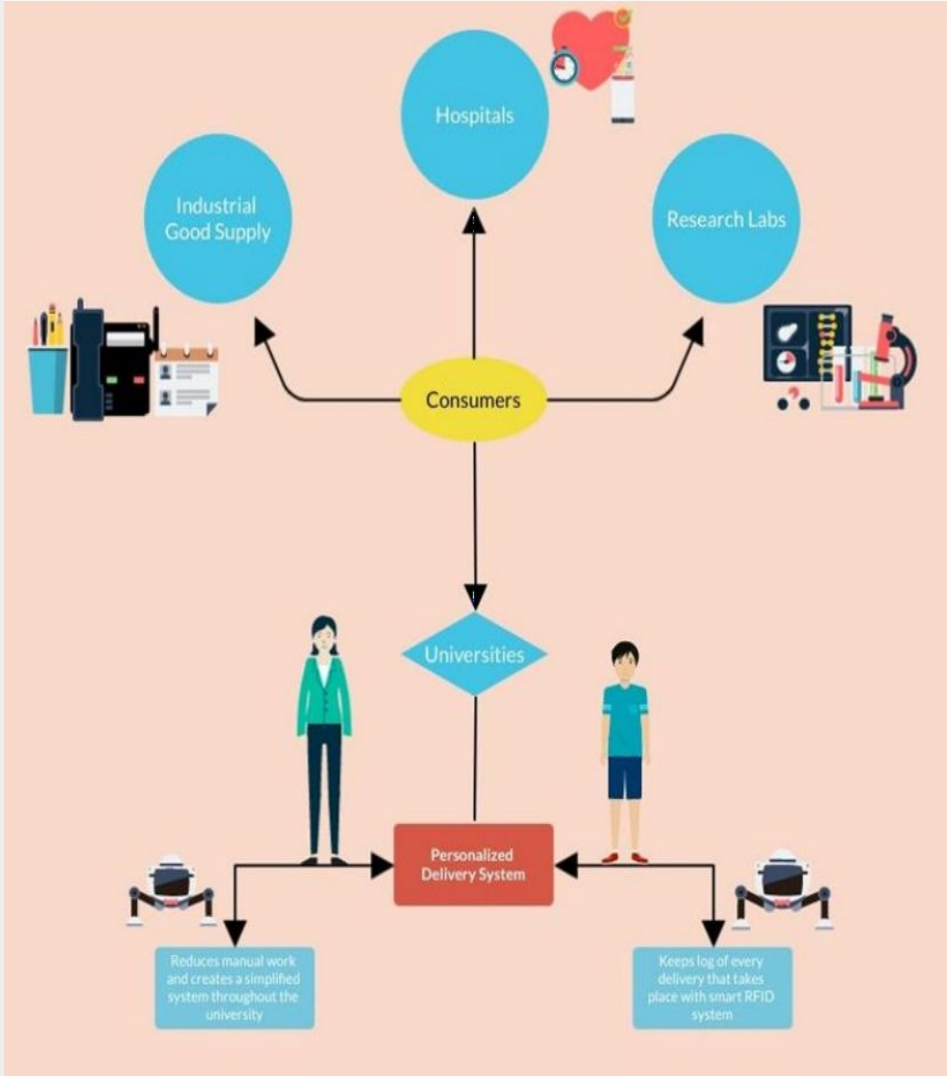


Working circuit of Integration of all three features

Business Target

- The information will be stored in micro SD card , the data log will be in .txt form and can be easily converted into excel sheet

- This can be used in universities , Hospitals , Research labs and factories etc



Applications

- In Hospitals: sending food , medicines.
- In Research Labs :transport paperwork, files, etc.
- In Factories :To transport heavier loads and bulk quantities.
- In Universities: Moving simple goods and delivering couriers.

Cost management

- The cost of building such delivery system can reach upto $150-$170 per line of transportation and line

- But if we can create a bulk production system, the cost easily reduces to less than $75

- This could the huge success given the simplicity of its working and its cost-efficient build

Relevance of Deliversity during Pandemic

- Delivers goods safely.
- Appropriate social distancing will be maintained.
- Lesser chance of contamination.
- Ensures delivery at any condition