

Project Proposal (Group – 7)

Project Title: Multipurpose Smart Truck

Team Members

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Project Description:

In our country, the Trading Corporation of Bangladesh (TCB) provides some special trucks called TCB's trucks for selling food items (Rice, pulses, edible oil, etc.) at a cheap rate for people who cannot afford them. Sadly, we find a lot of issues there, like, in most cases, one person buys products that were available for more than 10/12 people. For these reasons, most of the needy people cannot even buy the product even though they wait in line for a very long time. Product stealing is another major issue here. We tried to solve this problem by using our "Multipurpose Smart Truck" project. Using this truck, we will track and maintain the product delivery process remotely. Each truck will have a specific vending automation system. When a person arrives at the specified location of the truck, they must scan their ID, if the ID card gets valid from the database, the front door will open. The person can take the product, and after that, the door will be closed so that no one else can take the product from the truck. Regarding the money transfer, we will manage that from a decentralized office and then add the validity tag against the specified ID that has completed the money transaction. After delivering the product to a single person, the vending automation will begin inside the truck. A new package/lot will travel to the door side. Again, another person will check their ID in our RFID. If he/she has the validity to take the product, they can also take the product like earlier. However, in this system, we can not manage individual different packages. Therefore, we will consider each person will get a full package and no one has the access to change the product for now. But, if we get the time, we will try to implement this concept. One important part of this project is, it is not like that that we can only use it in TCB's truck, we can also use it in different truck/transportation systems. When we need to send relief to needy people, we can use our project there also. We can easily distribute food items, medicines, or any other products by using our multipurpose smart truck. In that way, the delivery process will become smoothly oriented, and everyone in the specified area will get their products without any kind of hassle. We have also implemented the theft detection process. If we can implement this project successfully in every necessary sector, then delivering products will be an automated task where only a driver needs to take the truck to the destination, and all the processes would get automated without any need for any other human being. As we are mainly focusing on the

delivery of food items, or the medical items (medicines, other necessary items, etc.) included in our relief items, we must ensure proper humidity, and temperature so that food or medicines do not get spoiled. Therefore, we are using a humidity and temperature sensor to keep track of the humidity and temperature conditions inside the truck's food storage. We are also getting a live status feed in our online web browser and mobile app. Therefore, we can monitor the condition remotely as well. We are also using another sensor to identify whether our food storage inside the truck is getting low or not. If our food supplies get low, an automated process will initialize a notification type of alert to the center from where we can provide resupply. As all the processes of handling each person will be enlisted in a cloud system, we can also track which area needs how much food stock, how much demand is there at a specific time in a specific location, and so on. This statistical data can help us a lot in determining our next area for supplying the products again or so on. For all the accessibility mentioned above, we are calling our project a Multipurpose Smart Truck.

Components:

1. Breadboard
2. Arduino Mega 2560 R3
3. Jumper Wire
4. Ultrasonic Sonar Sensor
5. DHT11–Temperature and Humidity Sensor
6. MIFARE Classic 1K RFID Sensor
7. ESP8266 CH340 NodeMCU WiFi Module
8. Necessary resistors, wires, diodes, LED lights
9. Servo Motor

Budget:

3200 TK in total

Diagram

