

IDEA-2018-IC-03-ATR

Submitted By

Yesha Gosaliya (16BIC050) Dhruvil Shah (17BIC154)



INSTRUMENTATION & CONTROL

INSTITUTE OF TECHNOLOGY

NIRMA UNIVERSITY

AHMEDABAD-382481

April - 2019

Idea-2018-IC-03-ATR

Idea Lab Project

Submitted By

Yesha Gosaliya (16BIC050) Dhruvil Shah (17BIC154)

Under the mentorship of

Asst. Prof. Vishal Vaidya



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Declaration

We do hereby declare that the technical project report submitted is original, and is the outcome of the independent investigations/research carried out by us and contains no plagiarism. The research is leading to the discovery of new facts/techniques/correlation of scientific facts already known. This work has not been submitted to or supported by any other University or funding agency.

We do hereby further declare that the text, diagrams or any other material taken from other sources (including but not limited to books, journals and web) have been acknowledged, referred and cited to the best of our knowledge and understanding.

Date:

Place:

Yesha Gosaliya

16BIC050

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Asst. Prof. Vishal Vaidya

**NIRMA UNIVERSITY
INSTITUTE OF TECHNOLOGY
IDEA LAB
INSTRUMENTATION & CONTROL**

**Annual/Final Report of the work done on the Idea Lab Project.
(Report to be submitted within 3 weeks after completion of the project)**

1. Idea Lab Project ID: IDEA-2018-IC-03

2. Project Title: ATR (Any Time Ration)

3. Period of Project: 22/04/2018 to 20/04/2019

4. (a) Name of Student (Roll No.): Yesha Gosaliya (16BIC050)
Department: I & C

- (b) Name of Student (Roll No.): Dhruvil Shah (17BIC154)
Department: I & C

- (c) Name of Mentor: Asst. Prof. Vishal Vaidya

5. Project Start Date: 22/04/2018

6. (a) Total Amount Approved: Rs. 30,000/-

- (b) Total Expenditure: Rs. 29,776/-

- (c) Report of the work done:
 - i. Brief objective of the project: This project is for rural development of INDIA. To help poor people to get their own food. It helps to decrease the human error from current PDS. It eliminates resource dependency & other factor affecting system. Data fetching is done in minimum time.

ii. Work done: In this system we design the machine, welded different things to make one unit, calibrate the load cell, working on packaging system.

iii. Results achieved from the work: We gain our goal by doing the work mentioned above. We gain confidence that if machine published in market than no more poor people will sleep without food.

iv. Has all the objectives been achieved as per plan. If not, state reasons.

Reasons

1)

v. Please indicate the technical difficulties, if any, experienced in implementing the project

Technical Difficulties

We faced lot of difficulties like to counterbalance the whole machine after fixing new object. We had added a packaging system which works on pneumatic, to calibrate, load cell, to test every circuits, so lot of working problem we faced.

vi. If the project has been completed, please enclose a summary of the findings of the study

Summary of findings of the study

Signature of Student1

Yesha Gosaliya

(16BIC050)

Signature of Student2

Dhruvil Shah

(17BIC154)

Signature of Mentor

Vishal Vaidya

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1.1 Introduction

India's Public Distribution System (PDS) with a network of 4.78 Lakh Fair Price Shops (FPS) is perhaps the largest retail system in the world. Major problems due to this system are the inefficiency in the targeting of beneficiaries and the resulting leakage of subsidies. The TPDS system today supports over 40 crore Indians below the poverty line with monthly supply of subsidized food grains. Public distribution system (PDS) is food security and food distribution system formed by the Government of India for providing food grains at affordable rates to poor section of population in the country. The system is jointly managed by central and state government. Public Distribution System is one of the widely controversial issues that involve malpractice. Most of the ration shopkeepers keep fake ration cards with them. Due to fake ration cards, the dealer receives the extra ration from higher authority and he sales it into the open market. The dealer may not provide a sufficient amount of food grains to consumers. Most of the time people are not aware of the availability of ration in ration shop. The dealer may sale ration at higher rates than recommended by the government or he may do wrong entries in register. In this way, in the current situation we are facing problem of corruption in public distribution system. There is no such effective system through which government gets acknowledgement of consumption of food grains by people.

1.2 Literature Survey

- As per 2011, the population of the country is 124 Crore and the BPL (below poverty line) population is 27.6 Crore.
- For that 27.6 Crore public, they have only 4.78 Lakh FPS which is not sufficient at all.
- As per 2013, the population of the country is 127 Crore and the BPL (below poverty line) population is 36.3 Crore.
- For that 27.6 Crore public, they have only 5.15 Lakh FPS.
- As per 2018, the population of the country is 135 Crore and the BPL (below poverty line) population is 41.3 Crore. For that 27.6 Crore public, they have only 4.78 Lakh FPS.
- Yellow Card Holders get 35 Kg of grains whereas Saffron Card Holders get 15 Kg of grains including Wheat and rice with other grains
- Village Grain Bank Scheme was proposing by Department of Food and Public Distribution System. So, we are proposing Any Time Ration System (ATR).

1.3 Major Objectives Proposed

Major objectives, we proposed here is to automate the whole grain distribution system through packaging. So, illegal smuggling of goods, Inaccurate measurements, over crowd, Bogus card & etc. These things are major objectives. Every small distribution channel can adopt this automated product in their day to day life, which make common person more independent and make system more self-reliable and less of faults results into less of contaminated systems

1.4 Objectives Achieved

Here, the system reached half of the automation levels, from that we can measure accurate ration things through different sensors. We also demonstrated the process of pneumatic packaging through pneumatic piston and cylinder. Additionally, the system also works under different users' input demand from which the main propose of the system.

1.5 Objectives Not Achieved

There are some of the constraints which system had faced under pneumatic connections and improper power supply. The system also faced problem in complete ring packaging system under given time duration for any user input value

1.6 Technical Difficulties Faced

The system faced calibration problem of load cell.

The system also faced problem in working of motorized ball valve and calibrating with different mechanical products.

1.7 Experimental Setup and Results

- Results we achieved is that whenever user gives input in grams for example 250gms entered motorized ball valve start opening.
- It will open till 250gms will drain from the tank.
- That 250gms will store in next storage where it is measured by load cell.
- After that grains will drain.

1.8

Budget Analysis

Purchase done for idea lab project "Any Time Ration (ATR) "

Approved Budget: Rs. 30,000/-

Sr. No.	Item Description	Aprox. Price per unit (Rs.)	Quantity	Total in Rs.
1.	Pneumatic Cylinder	1,500/-	1	1,500/-
2.	V Sealer	300/-	2	600/-
3.	Load Cell (5 Kg)	900/-	1	900/-
4.	Forming Collar	1,200/-	1	1,200/-
5.	Suit Frame	700/-	1	700/-
6.	Roll Mounting Shaft	500/-	1	500/-
7.	Mounting Roller with Bearing	500/-	3	1,500/-
8.	Sealer Assembly	3,500/-	1	3,500/-
9.	Cylinder	600/-	2	1,200/-
10.	Bucket with cylinder for wear machine	3,500/-	1	3,500/-
11.	Arduino Uno	450/-	1	450/-
12.	Arduino Mega	700/-	1	700/-
13.	5V Battery	120/-	1	120/-
14.	DC Motor 12V	140/-	1	140/-
15.	Cup board and fabrication	2,950/-	1	2,950/-
16.	Ball Valve	400/-	3	1,200/-
17.	Nut-bolts	10/-	40	400/-
18.	Fabricated strips 6.5 ft	210/-	4	840/-
19.	2-axis Wheels	130/-	4	520/-
20.	Pneumatic solenoid valve (1/8 inch)	1,100/-	2	2,200/-
21.	Extension wires (3 meter)	480/-	1	480/-
22.	Fabricated Rollers	135/-	2	270/-
23.	LCD 16x4	350/-	1	350/-
24.	Keypad	180/-	1	180/-
25.	Relay 4 Channel 5V	180/-	1	180/-
26.	Multicore wire (1 meter)	20/-	1	20/-
27.	Solenoid valve (5/2 size, ¼ inch)	350/-	2	700/-
	Total GST (18%)	--	--	2,976/-
Total:				29,776/-

Budget remains: Rs. 224/-

1.9 Conclusion and Future Work

Thus, our system works for the benefits of the rural society.

It also is a medium to minimize smug, simplify the ration distribution system & provide transparency to the common people.

Our system helps the user to get a modified version of the existing system.

Future Expansion

- 1) Level Sensor for silos
- 2) We can add kerosene (Liquid) for distribution
- 3) RFID tag or Barcode for person identification
- 4) Fingerprint for security purpose
- 5) GSM module for SMS
- 6) The provision can be made such as PDA device will update data directly to server online.

