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INTERNSHIP CERTIFICATE

This is to certify that **Mr.ABHIJEET KESHAV KANADE** student of Mechanical Engineering from Anantrao pawar college of engineering & research Pune has done his Internship in **REVOTECH ENGINEERS**, Narhe Pune from January 2022 to May 2022.

During the internship he demonstrated good interest & skill with a Self-motivated attitude to learn new things. His performance exceeded expectation and was able to complete the Internship successfully on time. We wish him all the best for his future endeavor.

Sincerely,
For **Revotech Engineers**.

Authorized Signatory.

SANJAY ENTERPRISES

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INTERNSHIP CERTIFICATE

This is to certify that **MR. Pradyumnay Abnave** A student of **Anatrao Pawar College Of Engineering And Research** has successfully completed Internship program at SANJAY ENTERPRISES dated From **1 Feb 2022** to **30 Apr 2022**.

During the tenure of his Internship with us He was found Hard working, Punctual, and inquisitive.

We wish him great success in all of his future endeavors.



Prop.

Mr. Sanjay.V.Mane



Shrikant Service Centre

22/163 laxminagar Parvati, near ambedkar school shrikant service centre pune 09.

MOBILE NO:-9922154857

CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mr. Amit Anwar Sota** a student of Anantrao Pawar college of Engineering and Research, Pune has successfully completed internship program from 10th March 2022 to 10th May 2022 under guidance of **Mr. Sunil Thore**.

During the period of his internship program with us he had been exposed to different process & whatever target given he has completed. He has found punctual, hardworking and inquisitive.

We wish him every success in life and career.

 Shrikant Service Centre

Date:- 1st February 2022

Place:-Pune

S. P. Memane
Proprietor

Authorised Signatory



SHIMA MACHINES

Shree Vardhan Trilok Society, Flat no.201, S No.133, Warje, Pune-411052

Date: 20.05.2022

Certificate

This is to Certify That **Mr. Arekar Rohit Hanumant Pursing his Mechanical Engg** from Anantarao Pawar Collage Of Engineering And Research Pune. He has Successfully Completed Internship at **SHIMA MACHINES, WARJE PUNE** form 3rd Jan To 29th Jan 2022.

We Found him sincere Hardworking technically sound and result oriented. He worked well as part of a team during his tenure. We take opportunity to thank him and all the best for future.

SHIMA MACHINES



SHREE SAI CAR GARAGE

NO.669/2B/2A,PLOT NO.7,BEHIND HANUMAN NAGARI,BIBWEWAD,PUNE

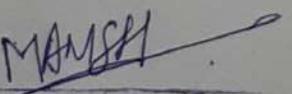
DATE:-24/05/2022

CERTIFICATE

This to certify that Mr. somesh predeep bhalerao student of Anantrao Pawar College of Engineering & Research, pune. Department of Mechanical Engineering completed his intership(from 4 February to20 may) at our company.

During period of his internship program with us, he was foundpunctual,hardwaorking and inquisitive.

We wish him success in life.


Shree Sai Car Garage

Proprietor

For shree sai car garage,

Internship Project Report

Air Conditioner System In Four Wheeler

By

Borale Ganesh Ramesh

[TE21-6312]

**Guide
Prof. V. K. Mhetre**



Department of Mechanical Engineering

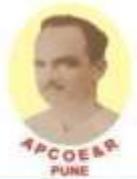
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Anantrao Pawar College of Engineering & Research, Pune

SEM [2021-2022]



AKHIL BHARATIYA MARATHA SHIKSHAN PARISHAD'S ANANTRAO PAWAR COLLEGE OF ENGINEERING & RESEARCH



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NAAC ACCREDITED, DTE CODE :- EN 6794, AISHE CODE :- C-41484
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Department of Mechanical Engineering

CERTIFICATE

This is to certify that **Mr. Borale Ganesh Ramesh** has successfully completed the internship Report entitled "Air Conditioner System In Four Wheeler" under my supervision, in the partial fulfillment of Seminar Report of Third Year Semester-6 of Bachelor Degree in Mechanical Engineering of Savitribai Phule Pune University.

Date:

Place: APCOER, PuneRoll

No:

Prof. V.K Mhetre
Project guide

Prof. Ganesh Kondhalkar
Head of Department
Mechanical Engineering Department

External Examiner

Principal

ACKNOWLEDGEMENT

I would like to thank Anantrao Pawar College of Engineering & Research for providing me with a platform where I can recite my success and can get acknowledge by all the fellow technical and non-technical element of society.

I express my sincere gratitude towards prof. Sandeep Raut sir For giving timely update, guidance and helping me. I would like to thank Prof. Ganesh Kondhalkar Head of Department Mechanical Engineering and Mr. Abhishek kadam Company Guide Kaizen Airtech Solution ., Office No. B-3, Jaiguru Niwas Nanasaheb, behind The Sandesh Hotel, near Navle Bridge, Khedekar Nagar, Narhe, Pune, Maharashtra 411041. It has been a wonderful experience for me to be an internship in such a good company. I would like to thank Mr. Abhishek kadam mentoring me throughout the Internship and introducing to the professional environment. I am very thankful to all my company colleagues and I am most grateful for all of you helping me through_this.

ABSTRACT

Injection molding technology has been in development for almost 150 years. Injection molding is a molding technology that melts the material with the aid of a screw and an external heating device and then injects it into a mold to form the corresponding product as the mold cools.

Injection molding has been a challenging process for many manufacturers and researchers to produce products meeting requirements at the lowest cost. Faced with global competition in injection molding industry, using the trial-and-error approach to determine the process parameters for injection molding is no longer good enough. At present, injection molding still faces the challenges of processing new materials, and the continuous improvement of the existing equipment technology is required for the continuous development of injection molding.

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1. INTRODUCTION

1.1 Overview

Automotive air conditioning systems operate under variable loads in order to provide passengers' comfort under wide outside temperature conditions. Under medium operating conditions, temperature stratification in the air stream at the exit of the evaporator is observed, which might lead to passengers' discomfort. The cause of this problem is uneven feeding of the evaporator's parallel channels with the refrigerant liquid phase from the two-phase mixture stream in the header. Channels with a lower inlet liquid flow rate are dried-out and the hotter outside air stream could not be effectively cooled only by the remaining refrigerant vapour flow.

2. HISTORY

The history of automotive air conditioning started in 1933 in New York, when the luxury car manufacturer offered installing an air conditioning unit with a heater. At that time the automobile has to be shipped to their workshop and was shipped back to local vendors after installation. Later in 1953, Chrysler Imperial was the first production car to offer a modern automotive air conditioning system as an option with single switch operation. By the 20th century, the demand for AC units in cars increased rapidly and now all the manufacturers provide AC units as standard facilities. Initially, its purpose was purely luxury, but now people use it as a safeguard against heat, dust, cold and smoke.

- The 1940 Packard was the first car to offer factory-installed air-conditioning.
- By 1969, more than half of all new cars sold were equipped with A/C.
- Some brands affixed window decals to promote their air-conditioned automobiles.
- For cars not equipped with factory air, dealer-installed, under-dash units were popular.
- In a 1971 front-page story, the New York Times implicated air-conditioning in the death of the convertible, postulating that: "In the age of air-conditioning, real air has lost its value."
- After the freon used in A/C units was blamed for depleting the ozone layer,

automakers were required to switch from R12 to the less harmful R134a refrigerant by 1996.

- Dual-zone automatic climate control allows for separate temperature settings for driver and passenger; some cars have additional zones for rear-seat passengers.
- Volkswagen calls its manual air-conditioning system "Climatic;" automatic A/C is "Climatronic."
- Today, more than 99 percent of all new cars are air-conditioned.
- There's no A/C in base versions of the Chevrolet Aveo; Honda Civic; Hyundai Accent and Elantra; Jeep Wrangler; Kia Forte and Rio; Mazda 3; Mitsubishi Lancer; Nissan Versa; and Toyota Tacoma.
- Testing by Consumer Reports found that using a car's air-conditioner resulted in a more than 3-mpg loss at highway speeds. Driving with the windows open had no measurable effect on fuel economy.

3. LITERATURE REVIEW

This paper studies the dynamics of temperature and humidity of atmosphere in a car compartment by the concept of enthalpy in analyzing the heat exchange involved. With heat change decomposed into sensible heat and latent heat, we are able to derive dynamics of temperature and humidity of the car compartment after taking into account of the difference of apparatus sensible heat factor and room sensible heat factor. These two formulas are used in conjunction with two control strategies on flow rates of supply air to simulate the intended controlled car compartment at constant enthalpy and of constant temperature. The contribution of this work is to provide a framework for automobile air-conditioning analysis and simulation.

Automobile air conditioning systems cool the occupants of a vehicle in hot weather. Automotive air conditioning is the process by which the air is cooled and cleaned, the humidity lowered and the air circulated. The quantity and quality of the air is also controlled. Under ideal conditions the air-conditioning system can be expected to accomplish all these tasks at the same time.

The air-conditioning system in modern vehicles is designed to lower the temperature to therefore assess the system's performance. The manifold and hand valves allow the system to be purged of refrigerant, evacuated of air and moisture, and recharged with new refrigerant. Most modern gauge sets use two gauges, but some air-conditioning systems that use a pressure control regulator for the evaporator may require a second low-pressure gauge.

2.1 BASIC PRINCIPLES OF AIR-CONDITIONING

The basic purpose of a heating, ventilation, and air conditioning (HVAC) system in vehicle air conditioning is not only to add heat or remove unwanted heat from the passenger cabin, but also to purify and circulate air throughout the vehicle. The operation of the HVAC system may be controlled either automatically or manually by the driver. In some high-end luxury vehicles, conditioned air distribution can be “Zone” controlled for each seating position. The objective here is to provide a thermally comfortable environment for every passenger as per his or her requirements.

2.2 HVAC System

The acronym HVAC stands for Heating, Ventilation and Air conditioning. The automobile HVAC system can be thought of as a climate control system having three subsystems:

H Heating

V Ventilation

AC Air conditioning

2.2.1 Heating

The purpose of the heating system is to add heat in the winters. Heating the passenger compartment is a comparatively easy task, since there is such an abundant supply of waste heat produced in the engine. This waste heat is expelled into the exhaust system and absorbed into the engine parts and oil. The heat that is absorbed by the engine parts must be removed, or the engine would fail in minutes. This is the job of the engine cooling system. We can tap into this heat source to provide heat to the passenger compartment.

2.2.2 Ventilation

The purpose of ventilation air is to keep the car interior fresh, replace stale air, prevent carbon monoxide from the exhaust, and create positive cabin pressure. The air ducts allow outside air into the interior via cabin filter to clean the air by trapping dust and pollen particles before they enter the passenger compartment.

2.2.3 The automobile compartment is heated due to several factors such as:

- a. Higher temperature of outside air
- b. Solar radiation
- c. Engine/exhaust heat

2.2.4 The amount of heat absorbed is dependent upon:

- a. Automobile insulation
- b. Position of sun and intensity of solar radiation
- c. Variation of light and shadow
- d. Vehicle color
- e. Tinted glass
- f. Vehicle speed
- g. Wind direction and velocity

2.3 PRINCIPLES OF AIR CONDITIONING

The basic principle behind the operation of an HVAC unit is conduction and convection. Heat is transferred from a low-temperature region to a high-temperature region in the vehicle, due to the pressure difference. This process of heat transfer is called Refrigeration.

Air conditioners use a fluid, called refrigerant, that absorbs heat when in a liquid state and in the process becomes a gas (evaporate). The fluids boil at different temperatures depending on the pressure that it is under. To increase or decrease the boiling point of a substance, we must alter the pressure on the substance. Increasing the pressure increases the boiling point. To decrease the boiling point, decrease the pressure. This extremely simple principle is the basis of all air conditioning and refrigeration systems, from home refrigerators and window A/C units to the largest industrial applications.

2.3 AIR CONDITIONING HAS TWO MAIN PURPOSES:

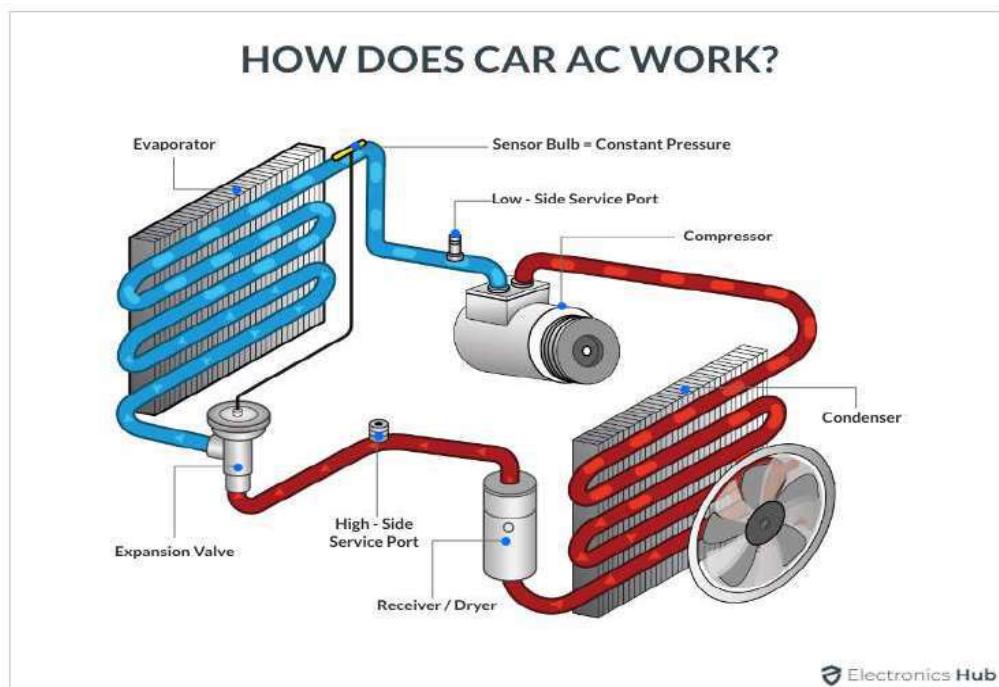
1. Cools the air entering the passenger compartment
 2. Removes the moisture from the air so it feels more comfortable inside the vehicle.
- Components of Car AC Vehicles are found to have primarily three different types of air conditioning systems. While each of the three types differs, the concept and design are very similar to one another.

3. CASE STUDY

WORKING OF CAR AC

The working of an automobile AC system is also almost the same as the normal AC but little difference is there-

1. The evaporator which is another heat exchanger used in AC takes heat from the passenger's cabin which in turn converts the liquid refrigerant flowing through the evaporator into vapors which in turn provide cooling with the help of the blower fan.
2. This vapor having high-temperature low pressure is then sent to the compressor which in turn increases the pressure over the vapors and converts the vapor refrigerant into a liquid refrigerant. Now the refrigerant is in high pressure and high-temperature liquid state.
3. This high-pressure high-temperature liquid refrigerant is then sent to the condenser which lowers the temperature of this refrigerant by forced convection provided by the radiator fan or by separated fan used. Now the refrigerant is having a low temperature but the pressure of the liquid is almost the same.
4. This high pressure and the low-temperature refrigerant is then sent to expansion valve which in turn releases the pressure from the refrigerant and convert it into its original state.
5. This refrigerant is then again sent to the evaporator for the further cycle.



TYPES OF AIR CONDITIONING SYSTEM

NASH INTEGRATED SYSTEMS

First American automobile to have a front-end, fully integrated heating, ventilating, and air-conditioning system. The Nash-Kelvinator Corporation used its experience in refrigeration to introduce the automobile industry's first compact and affordable, single-unit heating and air conditioning system optional for its Nash models. This was the first mass market system with controls on the dash and an electric clutch. This system was also compact and easily serviceable with all of its components installed under the hood or in the cowl area. Combining heating, cooling, and ventilating, the new air conditioning system for the Nash cars was called the "All-Weather Eye". This followed the marketing name of "Weather Eye" for Nash's fresh-air automotive heating and ventilating system that was first used in 1938. With a single thermostatic control, the Nash passenger compartment air cooling option was described as "a good and remarkably inexpensive" system. Entirely incorporated within the engine bay, the combined heating and cooling system had cold air for passengers enter through dash-mounted vents. Nash's exclusive "remarkable advance" was not only the "sophisticated" unified system, but also its \$345 price that beat all other systems.

AUTOMATIC CLIMATE CONTROL

Most competing systems used a separate heating system and an engine-mounted compressor, driven off of the crankshaft of the engine via a belt, with an evaporator in the car's trunk to deliver cold air through the rear parcel shelf and overhead vents. General Motors made a front mounted air conditioning system optional in 1954 on Pontiacs with a straight-eight engine that added separate controls and air distribution. The alternative layout pioneered by Nash "became established practice and continues to form the basis of the modern and more sophisticated automatic climate control systems."

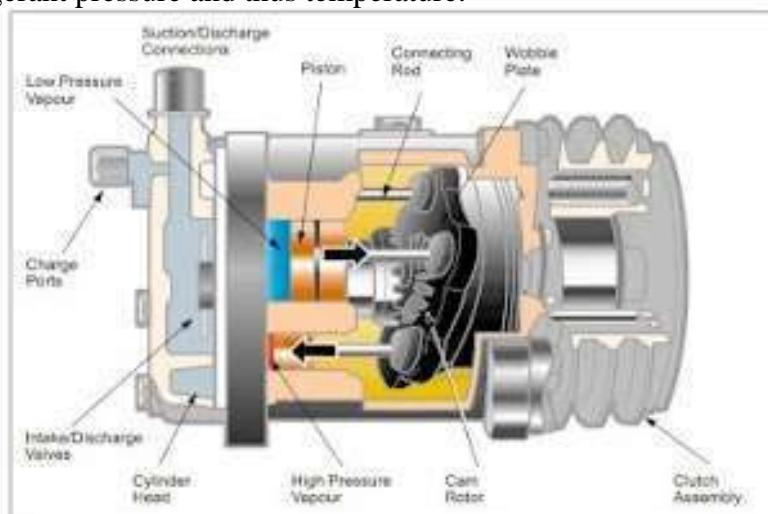
COMPONENTS OF THE AIR CONDITIONING SYSTEM

1. Compressors.
2. Condensers
3. Filter Dryer
4. Expansion Valve
5. Evaporator
6. Pressure Switch
7. Ventilation Fan
8. Condenser Fan

AIR CONDITIONING COMPONENTS WORKING

1. Compressors

It is also known as the heart of the AC system. The AC cycle starts with the compressor compressing the low-pressure gaseous refrigerant. The refrigerant leaves the compressor as a high-pressure gaseous refrigerant. The compressor is the central component of the AC system. A compressor provides pressure rise to the refrigerant to convert the vapor refrigerant into liquid refrigerant which in turn enables the further flow of the refrigerant through the condenser. The compressor of the car air conditioning system is driven by the crankshaft of the engine through the belt drive. The air con. compressor is typically driven by the engine via a belt or ribbed V-belt. The compressor compresses and transports the refrigerant within the system. There are different designs available. There are various makes and types of compressors utilized in automotive air con systems operating on R134a. The internal design might be Piston, Scroll, Wobble plate, Variable stroke or Vane. Regardless, all operate because the pump within the A/C system to stay the R134a and grease circulating, and to extend the refrigerant pressure and thus temperature.



2. Condenser

It is the device looks like a small radiator and is used after the compressor as it provides condensing i.e. lowers the temperature, of the high pressure and high-temperature liquid refrigerant sent by the compressor through forced convection provided either by radiator fan or by separated fan used with the condenser. As hot compressed gasses are introduced into the top of the condenser, they are cooled off. As the gas cools, it condenses and exits the bottom of the condenser as a high-pressure liquid.

The capacitor is required so as to chill the refrigerant that's heated by the compression within the compressor. The hot refrigerant gas flows into the condenser and transfers heat to the environment via the pipe and fins. As it cools down, the state of the refrigerant flowing through pipe of condenser changes again from gaseous to the liquid state.

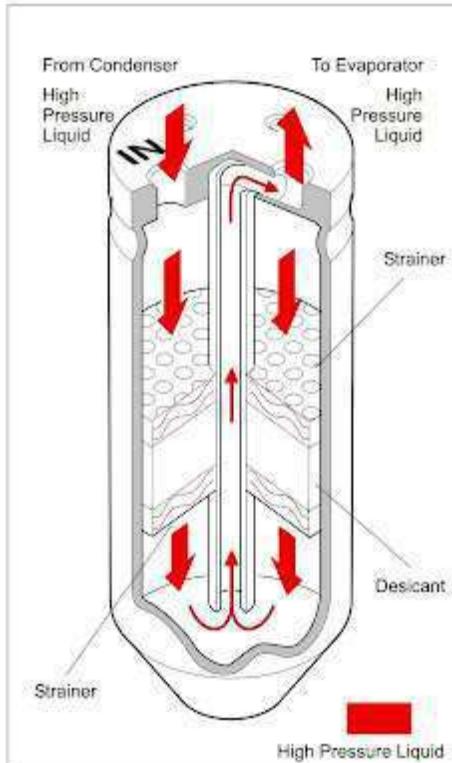
The Condenser function is to act as a device and permit heat to be due the recent refrigerant to the cooler outside air. Considering R134a entering the condenser is going to be a high-pressure heat vapor.

In some other words, as the R134a vapor travels through the tubes of the condenser heat is given off to the cooler ambient air; at that time the refrigerant vapor condenses and changes to the liquid state. At now an outsized amount of warmth is given off by the R134a. The refrigerant will now be a hot, high liquid.



3. Filter Dryer

The filter elements of the air con. system are either mentioned as filter dryers or accumulators, counting on the sort of system. The task of the filter dryer is to get rid of impurities from the refrigerant and to dehumidify it.



4. Expansion valve-

It is a device used in car air conditioning system for the purpose of separation between the high and low sections within the refrigerant circuit. It is installed in upstream of the evaporator.



To achieve optimum cooling capacity within the evaporator, the refrigerant flow is controlled by the expansion valve counting on the temperature. As a result, complete evaporation of the liquid refrigerant came from condenser via filter dryer is ensured and refrigerant arrives at the compressor gaseous state only. Expansion valves may differ in their design.

5.Evaporator

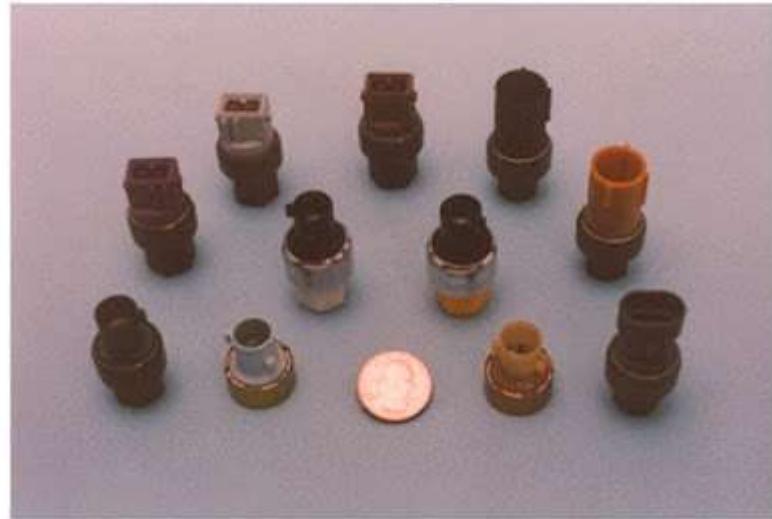
The evaporator is used to exchange heat between the ambient air and the refrigerant in the air conditioning system.

Its primary duty is to remove heat from the inside of your vehicle. A secondary benefit is a dehumidification. As warmer air travels through the aluminum fins of the cooler evaporator coil, the moisture contained in the air condenses on its surface.

Note – Thermal expansion valve is used in vehicles that enable the passenger to change the temperature according to the requirement, by just adjusting the knob provided over a dashboard in passenger's cabin.



6. Pressure Switch

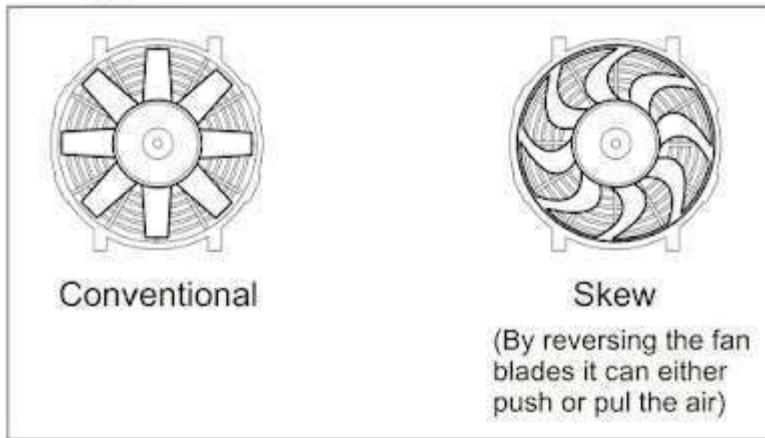


Pressure switches are responsible for protecting the air conditioning system against damage caused by too high or too low pressures. There are low pressure switches, high pressure switches and trinary switches.

The trinary switch comprises the high switch and therefore the low switch and a further switch contact for the condenser fan.

7. Ventilation Fan

Fan Types



The ventilation fan is used to ventilate the passenger car. It ensures clear visibility and a pleasing interior climate. Major pre-requisites for safe and comfortable driving.

8. Condenser Fan

The **condenser fan** helps to ensure the optimal liquefaction of the **refrigerant** no matter what operating state the **vehicle** is in. It is mounted upstream or downstream of the condenser and/or **engine cooling system** as a further or combination fan.

9. Refrigerant

It is the heat sensitive fluid with a very low boiling point that is used in AC as a medium of heat exchange.

8. Orifice Tube

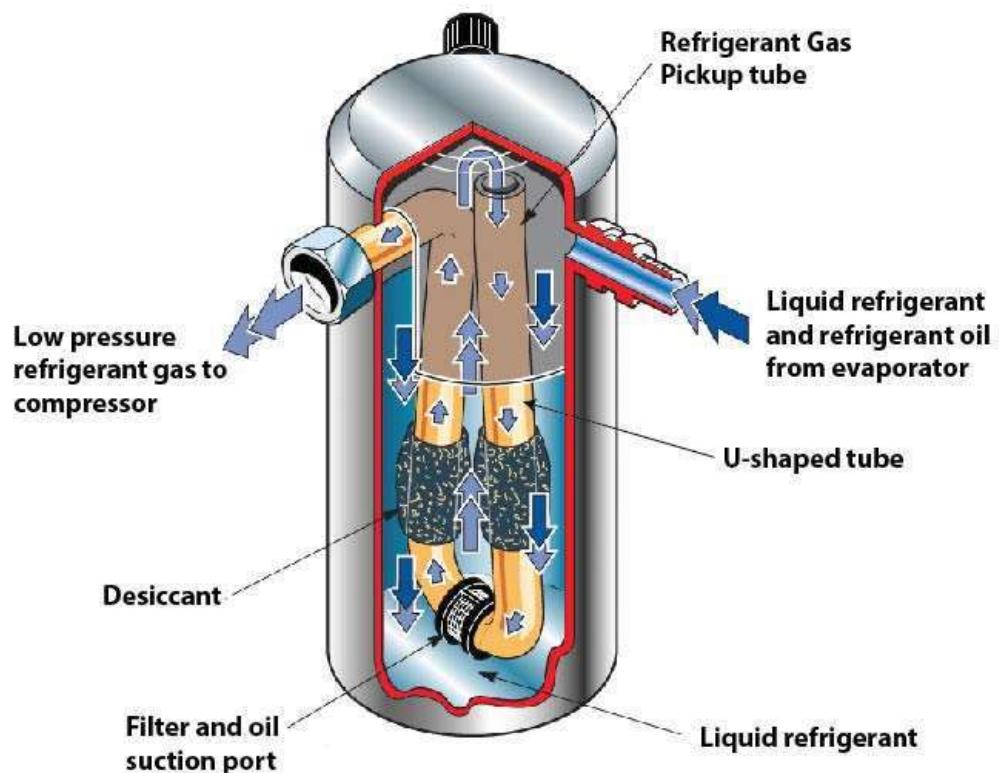
The orifice tube, probably the most commonly used, can be found in most GM and Ford models. It is located in the inlet tube of the evaporator, or in the liquid line, somewhere between the outlet of the condenser and the inlet of the evaporator. This point can be found in a properly functioning system by locating the area between the outlet of the condenser and the inlet of the evaporator that suddenly makes the change from hot to cold.

10. Accumulator

Accumulators are used on systems that accommodate an orifice tube to meter refrigerants into the evaporator. It is connected directly to the evaporator outlet and stores excess liquid refrigerant. Introduction of liquid refrigerant into a compressor can do serious damage. Compressors are designed to compress gas not liquid. The chief role of the accumulator is to isolate the compressor from any damaging liquid refrigerant. Accumulators, like receiver-driers, also remove debris and moisture from a system.

An accumulator is comparable in purpose to a receiver/drier. It serves similar, but slightly different functions. An accumulator is also a metal cylinder, but differs from a receiver/drier in these three ways:

1. An accumulator is considerably larger than a receiver/drier, usually around twice the volume.
2. The accumulator is connected to the evaporator outlet, in the low-pressure section of the system.



ADVANTAGES & DISADVANTAGES OF AIR CONDITIONER

Earlier, air conditioning was an extravagance vouchsafed only to the privileged few; but in this avant-garde era, though, it's a norm in offices and in few public transport systems, it has become a part of lives for many of the individuals and they got habituated to it.

Unfortunately, viciously low temperatures & faulty maintenance led to severe health issues, causing common disorders in people & occasional major outbreaks of ailments. Now let's have a look at few advantages & disadvantages of Air Conditioner on Health.

Advantages of Air Conditioner

Extreme heat shows a negative impact on the intelligence and on individuals physical activity and the use of air conditioning and feel of cool air can go some way to correcting this.

- Improves comfort levels at work as well as leisure.
- Enhances job performance.

- Results in augmented intellectual and physical activity.
- Lower or chilled temperature diminishes the existence of parasites and insects.
- Lower temperature means less sweating, decreasing the dehydration risk.
- Air conditioning system also assists in excluding external allergens like pollen.
- Good installation and maintenance of air conditioner, renews &enhances the quality of air

Disadvantages of Air Conditioner on Health

In spite of the relief it brings on a hot sunny day, there are some health problems which occurs due to the 24/7running of air conditioning. The following are some of the Disadvantages of Air Conditioner on Health.

- Unexpected changes in humidity & temperature affects individual's respiratory system
- Regular usage of air Conditioner dries skin & mucous membranes
- Its ambient noise, leads to noise pollution.
- Air circulation even transmits infectious respiratory diseases
- Airborne dust & fungi cause allergic reactions
- Air conditioning is related with chronic rhinitis & pharyngitis, hoarseness and throat irritation
- Air conditioning can worsen eye conditions like conjunctivitis & blepharitis, and also results in causing problems for contact lens wearers.
- Sometimes indoor air pollution is greater than outdoor air pollution. If indoor air contains allergens, you may suffer from nasal issues, headaches, itchy eyes, difficulty breathing and dizziness. In extreme cases, pneumonia and asthma attacks can also develop.
- Spending long hours in air conditioned of offices or home you may cause also suffer heat intolerance when you go outside.
- If you suffer from allergies in the summer months, running air conditioning constantly worsen your symptoms if AC system has not been regularly maintained.

Follow below points to prevent yourself against Disadvantages of Air Conditioner on Health:

- Check the manufacturer's instructions for cleaning/changing unit's air filters.
- Open windows and allow fresh air to circulate in order to flush out pollutants.
- Replace a new AC unit for every 10 years.
- Have an HVAC technician perform annual maintenance checks
- Try using the fan-only mode on your AC unit.
- Ensure to change your cabin air filters every 12,000 to 15,000 miles in car

CONCLUSION

In this project, we have tried to consolidate the idea of the Automotive Air conditioning from its conceptualization to its current status and future implications. The Automotive Air conditioning outweighs the current modes of conditioning in several ways, making it a ground-breaking application. It has a clear edge over present conditioning, travel and automobiles as it causes very less pollution.

It is thus safe to say that if the Air Conditioning in automobiles are beneficial, it will lead to a decline in the previous superior mode of conditioning. And similar to the concept of general air conditioning system.

Not only is the Automotive Air conditioning much cheaper but also overcomes most of the disadvantages of general air conditioners. Initially, the fuel prices might prevent a wide clientele, but over time, these issues can be fixed and the Air conditioning System is our next big step in the automobile industry.

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- www.google.com



K-STAR PLASTIC INDUSTRIES

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Ref. No. :

Date 20/04/2022

CERTIFICATE

This to certify that Mr. Akash Santosh Chavhan student of Anantrao Pawar College of Engineering & Research, Pune. Department of Mechanical Engineering completed his industrial Training (from 01 Dec 2021 to 20 Jan 2022) at our company.

During of period of his internship program with us, he was found punctual, hardworking and inquisitive.

We wish him every success in life.

For K-Star Plastic Industries,



Name: Mr. Abhishek Subhash Kadam.

Designation: Managing Director

Date: 20 April. 2022



VIRAJ INDUSTRIES

S.No.190/3, Bharekarwadi, Mutha, Tal. Mulshi, Dist. Pune – 412115.

CERTIFICATE OF INTERNSHIP

This is to certify that **MASTER ATHARVA NAGESH DESHMUKH**, Student of **ANANTRAO PAWAR COLLEGE OF ENGINEERING AND RESEARCH PUNE** has Successfully Completed the Internship Program from **10th March 2022 To 06th May 2022** in Our Organization.

During his tenure, we found him active and competent in executing all assigned tasks and services were found to be satisfactory.

We wish him great success in all of his future endeavors.

Date – 28/05/2022

Authorised Signatory

A handwritten signature in black ink, appearing to read "viraj".

Proprietor



VIRAJ INDUSTRIES



MARVEL

Engineering Solutions

Add : 108, Ganga Prestige Arcade, 612, Nana Peth, Laxmi Road, Pune - 411 002.
Tel.: 020-26336972 E-mail:info@marvelengineering.in. Website : www.marvelengineering.in

CERTIFICATE

This is certify that Mr.Gaurav Rajendra Mohite, student of Anantrao Pawar College of Engineering & Research, Pune 411009 AY 2021-2022 has successfully completed his internship at company name during the period of 4 weeks from 3rd Jan.2022 to 29th Jan.2022 in service department.

He has performed satisfactory his assigned duties under the guidance of the expert in charge.

We highly appreciated his dedication, punctually and discipline.

We wish every success in his future endeavors..!

Dated 31st Jan, 2022

Authorized Signatory


Marvel Engineering Solutions

Authorised Dealers





Helvoet

RUBBER & PLASTIC TECHNOLOGIES

HELVOET RUBBER & PLASTIC
TECHNOLOGIES (INDIA) PVT. LTD.
(EXPORT ORIENTED UNIT)
CIN U25200PN2004PTC129351
GSTIN NO. 27AA BCB4415 J1Z0
Gat No. 125, Hissa No. B,
Village - Mouje Kadarmwakwasti,
(Lon Kalbhor), Taluka - Havell,
District - Pune - 412 201.
T + 91 9130075934 / 35 / 36
www.helvoet.com

TO WHOMSOEVER IT MAY CONCERN

Dept.: Human Resources
Date: 01/02/2022

C E R T I F I C A T E

This is to certify that Mr. Mahiboob Bashasab Jamadar – Stipend Code No. 78050592 was engaged as a Diploma Engineer Trainee in the Tharmoset - Department from 01/01/2021 to 31/01/2022.

During his tenure he was found to be regular, Sincere and hardworking.

We wish him every success in his further endeavour.

For HELVOET RUBBER & PLASTIC TECHNOLOGIES (I) PVT. LTD.

Kaustubh Zadgaonkar
Manager - HR



Certificate

*This is to certify that, Mr. HERAMB V. JOSHI, 5th SEM student of Bachelors of Mechanical Engineering at 'Anantrao Pawar College of Engineering and Research, Pune – 411009, AY 2021-22' has successfully completed his **Internship** at 'Mystical Propack Pvt. Ltd. Thane, Mumbai' during the period of 4 weeks from **03/01/2022 to 29/01/2022** on a Project **Design of Vibration Welding Machine***

He has performed satisfactorily his assigned duties under the guidance of the experts in charge.

We highly appreciate his dedication, punctuality and discipline.

We wish him every success in his future endeavors..!

Date: 30/01/2022

Authorized signatory

Ratnagiri
For Mystical Propack
Pvt. Ltd.





Mystical Propack Pvt. Ltd.

Administrative Office:
Plot no. A-93, Wagle Estate,
Road No. 16, Thane (W) - 400 604
Tel. : (022) 2583 8241 / 42
Email : commercials@mystical.net.in

Certificate

This is to certify that, **Mr. SHASHANK H. KARNIK**, 5th SEM student of Bachelors of Mechanical Engineering at 'Anantrao Pawar College of Engineering and Research, Pune – 411009, AY 2021-22' has successfully completed his **Internship** at 'Mystical Propack Pvt. Ltd. Thane, Mumbai' during the period of 4 weeks from **03/01/2022 to 29/01/2022** on a Project **Design and Manufacturing of Ultrasonic Welding Machine**

He has performed satisfactorily his assigned duties under the guidance of the experts in charge.

We highly appreciate his dedication, punctuality and discipline.

We wish him every success in his future endeavors..!

Date: 30/01/2022

Authorized Signatory

Ratnagiri
For Mystical Propack
Pvt. Ltd.



Factory: 1) Ratnagiri - Plot no. F-2/1B, MIDC, Kherdi, Tal. Chiplun, Dis. Ratnagiri. Email: unitcpn@mystical.net.in
2) Silvassa - Survey No. 3/2/2, Village Khadoli. Surangi Road, DNH, Silvassa unitslv@mystical.net.in
3) Goa - Plot no 6, Survey No. 25/1 C A Corlim, Tiswadi, North Goa, Goa unitgoa@mystical.net.in



Anantrao Pawar College of Engineering & Research



Internship Presentation

On

“Doing work in Excellencea Digital Technology Pvt.Ltd.”

**Submitted by ,
Ashwini Kumthekar
Roll No : TE-21 6329**

**Guided by,
Prof. S.J. Baig**



Content :

- Introduction to Excellencea Digital Technology Pvt.Ltd.
- Roles and Responsibilities
- Project Worked on:
 - 1.Design of Buisct Plant
 2. Design of Paint Plant
- What I Learnt?



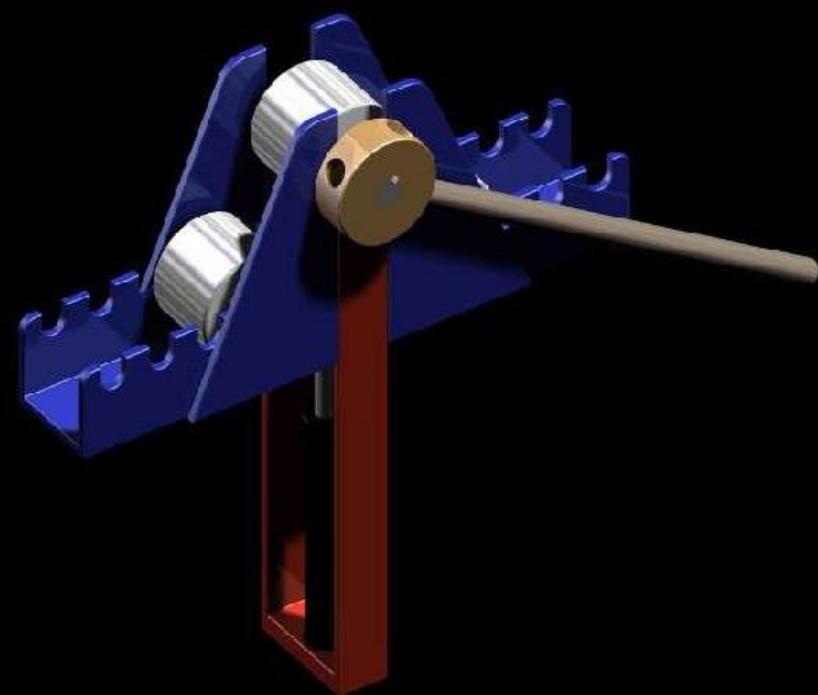
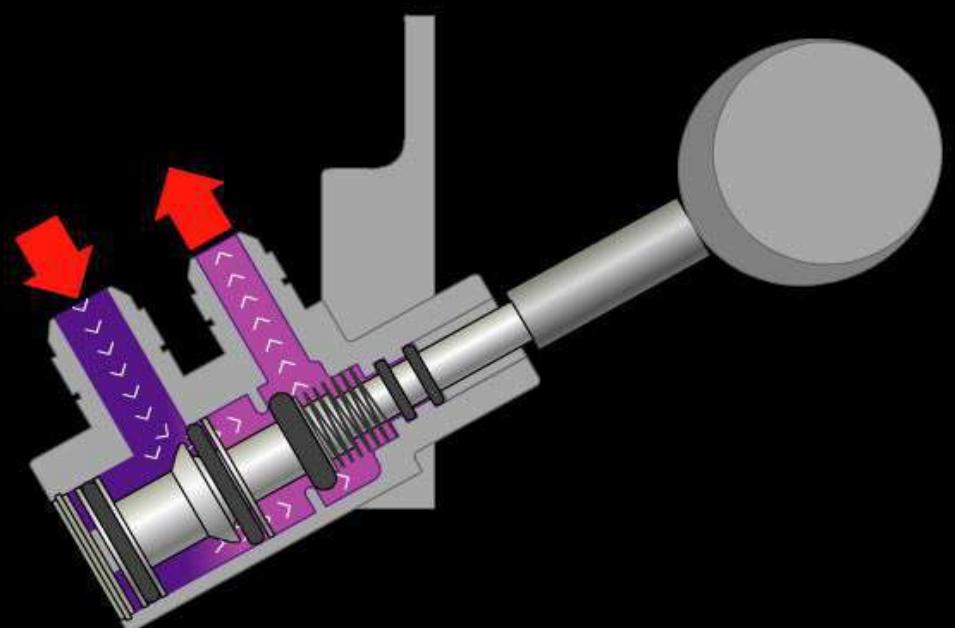
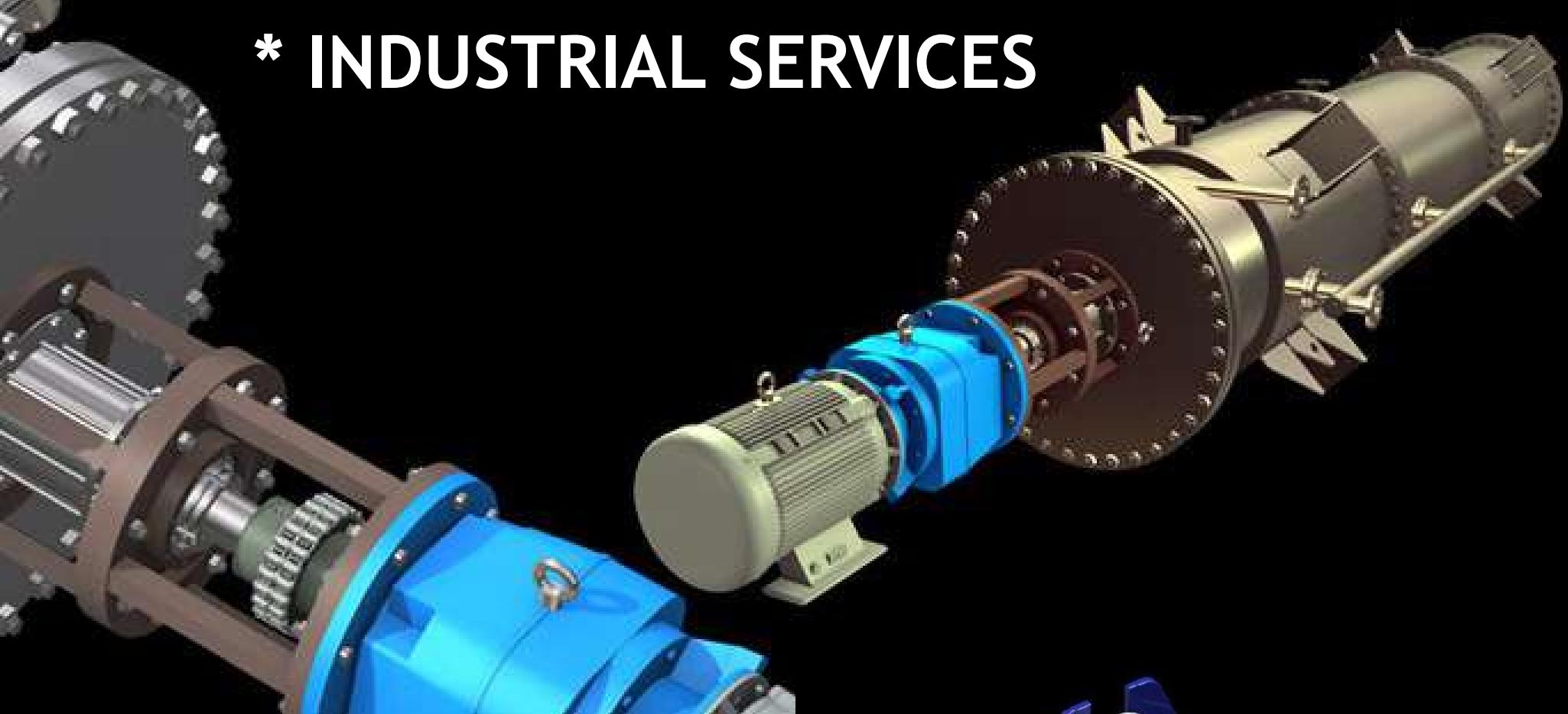
Introduction to Excellencea Digital Technology Pvt.Ltd.

- About the Company

1. Digital technology services company which caters high end Digital video, Industrial Design services, 2D/3D Animation services, VR experiences to its customers and partners.
2. Industrial design services using CATIA, PRO E, CREO, SOLID WORKS, CAD etc are core of industry, Excellencea helps industry with its expertise.
3. Precise designs and visually appealing 3D product modelling is essential and at Excellencea we can provide you with just that.



* INDUSTRIAL SERVICES





Roles and Responsibility :

Jr. Mechanical Design Engineer (Equipment)

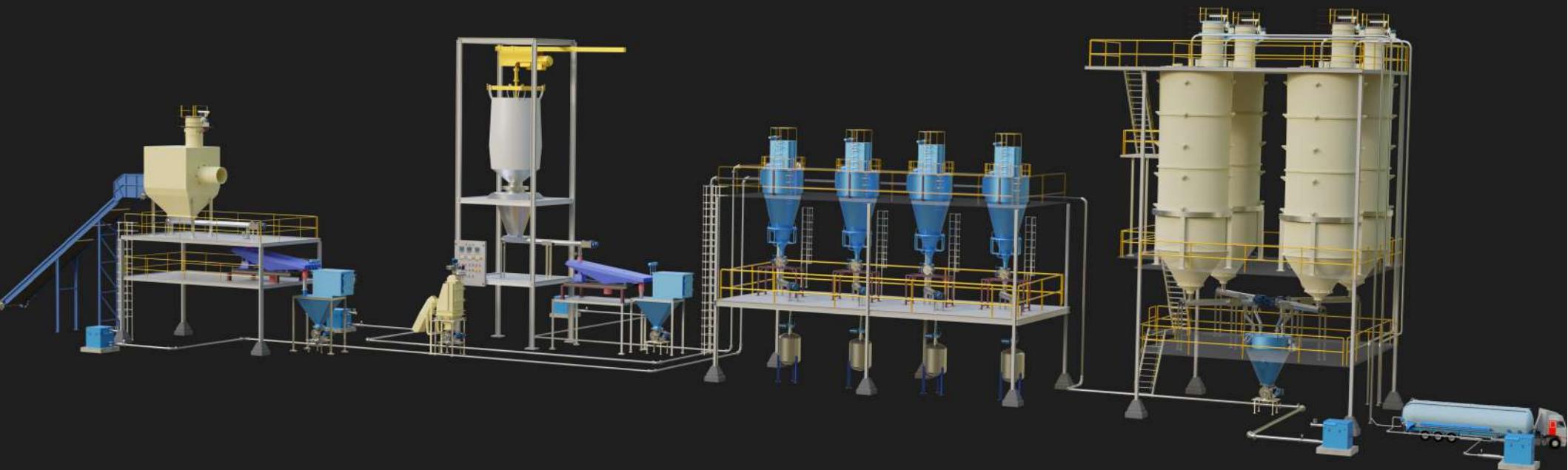
- Design and Drafting of Mechanical and Electro-mechanical Parts of the various type machines as per the 2D or 3D sheets and the customer requirements by using CAD tool like Creo, Catia.
- Study how the machine works and purpose of each parts of machine and then design them accordingly.
- Drawing of the detail parts and assembly with bill of material (BOM). Responsible for mechanical Design and release of files (3D CAD , Drawing, Specifications ,BOM.) for prototype and production builds.
- Mechanical Engineering functions and numeral calculations.
- Keep the servers updated including latest CAD softwares and licences.
- Creating concept proposal presentation. creating weekly updates presentation
- Create and maintain daily tracker, RFT tracker and monthly report.



Project I Have Worked on And Description of Projects:

1. Design of buiscuit plant that includes machines like Bag dump machine,Screw conveyor, Metal separator, Silos,Vibro sieve etc.
2. Design of paint plant that includes machines like Bag slitting machine,Screw conveyor, Tundish, Bag unloading machine, Charge hopper, Horizontal vibro sieve,Silos, Bagfilter,Roots browser,rotary air lock valve etc.

* Paint Plant



* Buisctuit Plant





- What I Learnt?

1. How to Communicate with Client.
2. Able to Delivered Projects on time without any delay.
3. Able to operate effectively in team and contributing positively to team operations.
4. Have always been ready to take an additional work & new job responsibilities.



TRISON ENGINEERING

A-16 SHUBHAMKARITI IND ESTATE, GAT NO 1546, AT POST PIRANGUT , TAL MULSHI DIST PUNE

GST NO:-27CUIPG3629M1Z8

MOBILE NO:-7057711301

CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mr. Mahendra Hanumanta Koli** a student of **Anantrao Pawar college of Engineering and Research**, Pune has successfully completed internship program from 10th March 2022 to 10th May 2022 under guidance of **Mr. Akshay Gholap**.

During the period of his internship program with us he had been exposed to different process & whatever target given he has completed, He has found punctual, hardworking and inquisitive.

We wish him every success in life and career.

Date:- 11th May 2022

Place:-Pune

Authorised Signatory

2nd May 2022

SUB: INTERNSHIP COMPLETION LETTER

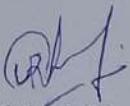
We are glad to inform you that **Mr. Siddharth Vijay Mane** from **Anantrao Pawar College of Engineering & Research, Parvati Pune** has successfully completed his internship at Envipro Engineering Pvt Ltd from **1st March 2022 to 30th April 2022**.

During his internship, he has done study on Manufacturing Process and Operation of Screw Conveyor.

We found him extremely inquisitive and hard working. He was very much interested to learn new things and also willing to put his best efforts and get into the depth of the subject to understand it better.

We wish him all the best for his future endeavors.



 Rushikesh Mane

Plant Incharge (SEZ Unit)
Envipro Engineering Pvt. Ltd.



Vishwadhar Enterprises

Mfg: of All Type of Corrugated Boxes & Wooden Pallets

Office: Flat No-304: BLDG, a-7,Mangal Bhairav,

Nanded City, Singh gad Road, Pune-411041.

Gat No. 108, Next to piaggio Two wheeler plant, Katphal, M.I.D.C., Baramati. Dist. Pune-413 133.

Date:- 29/03/2022

Ref: Vishwadhar Enterprises/HRD/EXP-AN/20-21/08

Mfg: of All Type of Corrugated Boxes & Wooden Pallets

Office: Flat No-304: BLDG, a-7,Mangal Bhairav,

CERTIFICATE

This is to Certify That **Mr. Pawar Rahul Raju** Pursing his **Mechanical Engg** From Anantrao Pawar College Of Engineering And Research Pune. He has Successfully Completed Vehicle Crankshaft Project at **Kalyani Centre For Precision Technology Limited Indapur.** from **3rd Jan To 29th Jan 2022.**

We Found him sincere, Hardworking, technically sound and result oriented. He worked well as part of a team during his tenure. We take opportunity to thank him and all the best for future.



Head of Department

Vishwadhar Enterprises

email: vishwadhaentrsl@gmail.com

Cell-9604791123, 9604791521

To Whom It May Concern

This is to certify that Mr. Rutik Tanaji Pawar (Employee Code: M00331) has been working with us in the Production Department since 15/11/2021.

He has resigned from the services of the Company on his own accord and has been relieved from the services of the Company with effect from the close of working hours on 30/05/2022.

The last designation held by him was **Assistant Executive - Production**.

During his tenure with us, we have found him to be forthright, sharp, intelligent and meticulous in his work.

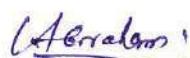
Notwithstanding that the company has relieved 30/05/2022, all his surviving obligations to the Company related to inventions, non-compete, non-solicitation, confidentiality and other similar agreements executed by him with the Company will continue to remain in force until the expiry date mentioned in the agreements.

We wish him all the best in his future endeavors.

Yours sincerely,

Thanking You,

For MEW Electricals Limited.



Abraham Joseph
Assistant Manager - HR



Shrikant Service Centre

22/163 laxminagar Parvati, near ambedkar school shrikant service centre pune 09.

MOBILE NO:-9922154857

CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mr. Satyam Shrikant Memane** a student of Anantrao Pawar college of Engineering and Research, Pune has successfully completed internship program from 10th March 2022 to 10th May 2022 under guidance of **Mr. Sunil Thore**.

During the period of his internship program with us he had been exposed to different process & whatever target given he has completed, He has found punctual, hardworking and inquisitive.

We wish him every success in life and career.

Date:- 1st February 2022

Place:-Pune

Authorised Signatory



RGM ENGINEERS PVT. LTD.

SPECIALIST IN: LASER CUTTING, CNC BENDING,
PRECISION SHEET METAL FABRICATION, & ASSEMBLIES

CERTIFICATE

This is to certify that, Mrs. RUTUJA B. SAWANT, student of Bachelors of Mechanical Engineering at 'Anantarao Pawar College of Engineering and Research, pune-411009, AY 2021-22' has successfully completed his internship at company name during the period of 4 weeks from 03/01/2022 to 29/01/2022 in metrology.

She has performed satisfactorily her assigned duties under the guidance of the experts in charge.

We highly appreciate her dedication ,punctuality and discipline.

We wish every success in her future endeavors...!

Date:30/01/2022

Authorized Signatory



RGM Engineers Pvt Ltd.



SMART INDUSTRIES

Design & Manufacturers of Automobiles, Jig & Fixture & Engineering Job Works

Add : Gat No.106, Jyotiba Nagar, Talwade, Pune 412 114 Mob. : 9404697702 / 9889902912 / 9823203803

e - mail : smartindustriespune@gmail.com

7888049104

Ref.:

Date :

INTERNSHIP CERTIFICATE

This is to Certify that DANIEL MADHUKAR SONAWANE a student of Mechanical Engineering of APCOER Pune has Sucessfully completed Internship From 3 - April -22 To 3- May -22 At SMART INDUSTRIES During the period of his intership programme with us he was found Very punctual , Hardworkin & inquisitive .

Terms & Condition

1 Reporting time 9.00 am daily Friday to Wednesday.

2 Period of Engagement 4 to 6 Month.

Yours Truly

For SMART INDUSTRIES





VIRAJ INDUSTRIES

S.No.190/3, Bharekarwadi,Mutha, Tal. Mulshi, Dist. Pune – 412115.

Date: 10th April 2022

CERTIFICATE OF INTERNSHIP

This is to certify that **Mr. Mallikarjun Gurunath Bankar**, Student of **ABMSP's Anantrao Pawar College of Engineering & Research, Pune** has Successfully Completed the Internship Program from **10th March 2022 To 12th April 2022** in Our Organization.

Authorised Signatory

A handwritten signature in blue ink, appearing to read "S. Bankar".

Proprietor



VIRAJ INDUSTRIES