

Title: - MODELLING AND ANALYSIS OF COMPOSITE LEAF SPRING

Guide Name: - Prof. Aditya. Prabhukhot

Group Name: - Mahesh Singh
Clinton Rodrigues
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Sudhanshu Tiwari

Abstract: -

This report is intended to discuss the design and analysis of composite leaf spring. Spring is a part of suspension system in automobile. The spring absorbs the shocks and vibration which is coming either from the engine or getting transmitted from ground so that the person sitting inside the vehicle will be safe. Leaf springs are mainly used in heavy duty vehicle e.g. .trucks ,bus etc .Conventional leaf springs are made up of steel material, which has some disadvantages like corrosion, lesser life, more weight ,high maintenance cost, less economical etc on the other hand the composite has many advantages like it is high strength taking capability, corrosion resistance, high working life, low , maintenance cost, more economical compared to conventional spring. By using this material we are enhancing the bending strength and stiffness of the spring. The dimension of leaf spring is taken for the light weight vehicle. The stress and the deflection in the leaf spring is calculated by using the concept of machine design. The vibrational analysis of the spring is done by using the concept of mechanical vibration. The modelling of the spring is done by using the SOLID WORKS software. The analysis under different loading condition is done in ANSYS software. The actual model of leaf spring will be prepared by using selected material and will be tested on UTM. The results obtained from actual working model will be compared to that of the virtual model under given load.

Title: - AERODYNAMICS DESIGN OF GO-KART BODY

Guide Name: - PROF. ADITYA PRABHUKHOT

Group Members: - CHINMAY MISHRA
JAY SOLANKI
KUNAL VAISHNAV
RAJ SINGH

Abstract: -

Aerodynamic force plays an important role in Go-Kart vehicle performance and its stability when Go-Kart vehicle reaches higher speed. The researchers are mainly focused in reduction of co-efficient of drag and lift in car model at higher speed. Even though the various techniques are found by researchers for improving Go-Kart vehicle performance and its stability still we are in need of further improvement. In order to investigate how vehicle components affect the overall drag a detailed numerical test will be conducted by means of any acceleration data will be examined to evaluate the actual driving capability of the engine and to compare it with the engine torque measured in static conditions. Based on C_l and C_d values, optimal model was selected. In this paper, lift and drag of production vehicle are determined by the analysis of flow of air around it using Ansys. For Go-Kart vehicles, it may also be important to produce desirable downwards aerodynamic forces to improve traction and thus cornering abilities. By reducing the difference in pressure the drag force will be reduced hence the fuel consumption will be reduced.

Title : AIRCRAFT WING ANALYSIS USING DIFFERENT CROSS SECTIONED WINGS ON DIFFERENT AIRFOIL SHAPES

Guide Name : PROF. ADITYA PRABHUKHOT

Group Members: -Nilesh Chauhan
Tarique Khan
Ahad khan

Abstract :

The airfoil section is the incarnation of the wing or a lifting surface which is very important in an aircraft wing design. While the selection of airfoil is very important, selecting a particular shaped wing also matters when it comes to designing the aircraft. Different shaped wings are manufactured in order to achieve the desired lift and drag forces for the aircraft. The values of lift and drag forces changes with even a slight change in the angle of attack, a.k.a. AOA. The general range of angle of attack ranges from 0° - 15° . Once the angle of attack exceeds this range, the lift force drops drastically and simultaneously the drag force increases rapidly. In this condition, the aircraft will be a prey to an unfortunate crash. The need for achieving different lift and drag force is due to the various applications for the aircrafts, which are transportation purposes (public transportation as well as private transportation), military applications, transportation of goods, extinguishing forest fires and many more. This project aims at analyzing the different shaped wings for aircrafts. Here, we are going to perform analysis on basic shaped wings, namely 'rectangular shaped wings', 'trapezoidal shaped wings' and 'tapered shaped wings'. We will analyze different shaped wings by using three different airfoil shapes for each and every wing and determine their various characteristics at static as well as dynamic conditions. These characteristics will be determined by conducting calculations using theoretical methods, i.e. using standard formulas and procedure, as well as using CFD. Finally comparison of both the results will be done and the safest cross sectioned wing with a certain airfoil shape will be selected.

Title:- STIRLING ENGINE

Guide Name:- PROF. ABHIJIT SAMANTA

Group members:- BREZHNEV FERNANDES
ARHAM ZAMINDAR
SAAD KHAN
RISHABH DUBEY

Abstract:-

Stirling engines are interesting and often misunderstood devices. These engines provide a renewable and clean source of power that no other engine can match. This is due to the fact that the working gas is a closed system with no exhaust. All that is required for these engines to run is an initial force and a temperature differential. While many different types and sizes exist, our group will be developing a small gamma-type Stirling engine in order to prove that these devices can achieve continuous motion given a low temperature differential. There are many design and building challenges to overcome, most limiting of which are budget and time constraints. All of these challenges will be documented thoroughly in our final design document. This project intends to show and derive all necessary equations, create a 3D CAD model, and to build a working prototype of an improved Stirling engine design that will operate indefinitely with as small as temperature difference as possible.

Title: - DESIGNING OF AUTONOMOUS MULTIPURPOSE ROBOT

Guide Name: - PROF. ABHIJIT SAMANTA

Group Members: - ABRAAR SAYED

ADIL SHAIKH

ASHISH PITHADIA

FALGUN PAWAR

Abstract: -

Nowadays, robots are increasingly being integrated into working tasks to replace humans especially to perform the repetitive task. In general, robotics can be divided into two areas, industrial and service robotics. International Federation of Robotics (IFR) defines a service robot as a robot, which operates semi, or fully autonomously, to perform services useful to the well-being of humans and equipment, excluding manufacturing operations. These mobile robots are currently used in many fields of applications including office, military tasks, hospital operations, dangerous environment and agriculture. Besides, it might be difficulties to the worker whose must pick and place something that can affect itself. For example, things like chemistry that cannot be picked by human and for the military such as defuse bomb that needed robot to pick and place the bomb to somewhere and for user that needed robot to do pick and place item while sitting and much more. Therefore, a locomotive robot can replace human to do such integrated work.

The robot is wireless controlled to ensure it can journey a long way from the user. For example, previous project robot Autonomous Robot Navigation using radio frequency that similar to this project. The robot was prepared mechanically to be suitable for this RF to work.

Other than wireless controlled, Bluetooth is also a platform to control robot without using the cable. The movements of the robot are controlled remotely using Bluetooth connectivity. For this project, robot will be controlled in the all directions (forward, reverse, right and left). The actuator (arm robot) is controlled by generating pulse width modulation, PWM from the pin at Arduino Mega board. The security system of buildings and factories is an important issue to human daily life. The robot can detect fire event using fire detection module. The security system in the robot can detect any abnormal and dangerous situations. These activities are notified to us through internet or by SMS through GSM module. Thereby increasing the safety and security of factories and small-scale industries.

Title: Theoretical and experimental studies of Shell and Tube Heat Exchangers using inclined baffles.

Name of Guide: Prof. Yogita U. Yerne

Group members: Siddhesh Bagal
Ajay Gupta
Shubham Kale

Abstract:

Shell and tube heat exchangers are playing a vital role in many industries. Hence, it has become necessary to properly model and design the Heat Exchanger so that it works more efficiently. In this study an attempt is being made to increase heat transfer rate and decrease the pressure drop by introducing inclined baffles by replacing the segmental baffles. A comparative study and parameters of the heat exchangers having segmental as well as inclined baffles will also be included. Calculations will be presented which will prove our design and component selection. Currently, the shell and tube heat exchangers having the segmental baffles have more pressure drop. From Literature it has been found that the inclined baffles have more heat transfer rate and reduced pressure drop. In this study parameters such as vibrations, fouling, pressure drop, heat transfer coefficient will be studied. Based on these new improvements, the conventional heat exchangers with segmental baffles might be replaced by inclined baffles in applications in order to save energy and prolong the service life and operation times.

Title: Theoretical & CFD Analysis Of Heat Pipe

Guide Name: Prof. Yogita Yerne

Group Member: Gupta Abhay

Gupta Sunil

Jaiswal Ankit

Rane Bakulesh

Abstract:

In this paper numerical and theoretical analysis of Heat pipe is presented. A two phase study of the Heat pipe is studied by considering different heat inputs and different filling ratios in the evaporator and Condenser region. In this report heat pipe is analyzed by keeping the orientation by 60 degrees to the horizontal. Different operating limits such as Capillary limit, sonic limitation, entrainment limitation, boiling limitation, interface conditions, startup difficulties, and wicking limit is calculated theoretically. The theoretical results will be numerically verified by using the Computational fluid Dynamics (CFD) with the help of Ansys fluent software. As the heat pipe is very fast, effective and efficient, it has wide range of applications. The heat pipes are used in industrial sector such as electric devices, Aerospace sectors such as satellites and many more. The heat pipe can also be very effective for electricity generation from the hot exhaust gases by using thermoelectric generators.

Title: HEAT EXCHANGER USING NANOFLUIDS

Guide Name: PROF.YOGITA YERNE

Group members: Vikas. Yadav
Kumar Laxman
Shashank Shekhar. A. Kumar
Bhavesh. Nair

Abstract:

The present work has been carried out with a view to predicting the performance of a tube in tube heat exchanger. The process in solving simulation consists of modelling and meshing the basis geometry of shell and tube heat exchanger using Computational Fluid Dynamic package ANSYS 19.0. The performance of the heat exchanger has been evaluated by using CFD package FLUENT and has been compared with the existing experimental values. An attempt has also been made to calculate the performance of the above heat exchanger by considering the effect of Cu/water nanofluids on the heat transfer enhancement inside the tube and tube heat exchanger at variable inlet temperature and the result so obtained have been compared. The performance parameters pertaining to heat exchanger such as effectiveness, overall heat transfer coefficient, thermal conductivity etc; have been reported in this work. The objective of the project is analysis of tube heat exchanger with nanofluids and study the flow and temperature field inside the tube. The heat exchanger contains 2 tubes of outer diameter 20mm and a 600mm long shell of inner diameter 90mm. Result from the study shows that the heat transfer increase in temperature and volume concentration of Nano-particles

Title: Air To Air Plate Type Heat Exchanger

Guide Name: Prof. Dr. S. Ram Reddy (Principal)
Prof. Roshan Mishra (Co-Guide)

Group Members: Zain Ahmed Addewala
Siddhant Badbe
Shoaib Khan

Abstract:

A plate heat exchanger is a type of heat exchanger that uses metal plates to transfer heat between two fluids. This has a major advantage over a conventional heat exchanger in that the fluids are exposed to a much larger surface area because the fluids are spread out over the plates.

This facilitates the transfer of heat, and greatly increases the speed of the temperature change. During the entire course of project, we will be carrying out a detailed thermal analysis on air to air plate type heat exchanger. Since this is an industrial project, we will be building up an experimental setup for calculation of air to air plate type heat exchanger for counter flow arrangement using air as a working fluid. Note down readings to determine a) Overall heat transfer coefficient b) Log mean temperature difference (LMTD).

The total rate of heat transfer between the hot and cold fluids passing through a plate heat exchanger may be expressed as: $Q = UA\Delta T_m$ where U is the Overall heat transfer coefficient, A is the total plate area, and ΔT_m is the Log mean temperature difference. U is dependent upon the heat transfer coefficients in the hot and cold streams.

Using these results to find the total heat transfer rate between hot and cold fluid of the heat exchanger. By comparing the heat transfer rate of our plate type heat exchanger with existing heat exchangers (specially PHEs of other orientations) and stating its advantages and industrial applications over it.

Once our motive and goal in obtaining compactness and effectiveness is achieved, this will prove to be the center of attraction for many industries.

Title: Design and development of SI engine using oxy-hydrogen fuel

Guide name: Prof. Vikash Agrawal

Group members : Swapnil Anil Kanvinde
Hardika Mahendra Karkera
Siddharth Ashish Rami
Shivam Pushpendra Shukla

Abstract:

In this experiment we will be studying the basic properties of gas generated through electrolysis of water and then use this gas in the bike as a fuel with gasoline by mixing it with air. This will result in the increased mileage of bike up to 30 to 50% and reduce the polluting contents from the exhaust gases. The threat posed by Increasing prices of fuels and the striving for securities of energy supply are issues high on the political agenda these days. Governments are putting strategic plan motion to decrease primary energy use and facilitate modal shifts. Taking a prominent place in these strategic plans is hydrogen as a future energy carrier. Energy stored in hydrogen would be available at any time and at any place on Earth, regardless of when or where the solar irradiance, the hydropower, or other renewable sources such as biomass, ocean energy or wind energy was converted. Hydrogen gas combined with the standard air/fuel mixture increases the mileage. This form of alternative fuel is provided by a hydrogen generator mounted on the vehicle. Once set up is ready, the hydrogen gas (fuel) will be produced from water, an electrolyte compound, and electricity supplied from a battery provided. Here we will be designing a mixed fuel two wheeler engine i.e. in a conventional SI engine where we will be incorporating traces of hydrogen along with gasoline in order to minimize consumption of gasoline as well as to increase the overall power of vehicle. Here in addition, a hydrogen generating unit will be made to produce hydrogen. It is actually an electrolysis unit having high grade stainless steel/graphite/semiconductors as electrodes in a closed container and mixture of distilled water & suitable ionic solution (KOH or NaOH) as electrolyte. Power for electrolysis will be taken from an additional battery provided (12V).

TITLE: Hydroponics - Experimental determination of effect of different artificial light on growth of plants in hydroponics

GUIDE NAME: Prof. Dhiraj Singh

GROUP MEMBERS: Sahil Acharya
Ajinkya Sawant
Smith Shah
Kunal Vedpathak

ABSTRACT:

With the advent of civilization, open field/soil-based agriculture is facing some major challenges; most importantly decrease in per capita land availability. Due to rapid urbanization and industrialization as well as melting of icebergs (as an obvious impact of global warming), arable land under cultivation is further going to decrease. Again, soil fertility status has attained a saturation level, and productivity is not increasing further with increased level of fertilizer application. Besides, poor soil fertility in some of the cultivable areas, less chance of natural soil fertility build-up by microbes due to continuous cultivation, frequent drought conditions and unpredictability of climate and weather patterns, rise in temperature, river pollution, poor water management and wastage of huge amount of water, decline in ground water level, etc. are threatening food production under conventional soil-based agriculture. Naturally, soil-less culture is becoming more relevant in the present scenario, to cope-up with these challenges. In soil-less culture, plants are raised without soil. Improved space and water conserving methods of food production under soil-less culture have shown some promising results all over the World. Producing plants under artificial lighting could be a solution addressing these concerns. Light-emitting diodes (LEDs) offer the advantages of a narrow light spectrum, low power consumption, and little heat production. The objective for our study will be to determine the effects of different light sources on the growth of plants in a hydroponic system. The plants will be grown in a controlled environment under three light treatments—blue LEDs, red LEDs, and control specimens in sunlight to compare the growth in natural and artificial lighting. Plant dry weight, height and pH value of the nutrient solution of different plants under different light environment will be recorded to compare the growth. Hydroponics will be used as the method to grow the plants for the research.

Title: Multipurpose Manual Agro Equipment

Name of Guide: Prof. P. Damodar

Group members: Saloni Bhojak
Dharmil Gopani
Pravin Mishra
Vaibhav Sharma

Abstract:-

The multipurpose manual agro equipment ensures uniformity in seed broadcasting and saves time and money. This is user friendly equipment and helps each and every small scale farmers who cant afford huge automatic machineries. Animal efforts can be replaced by some advance mechanism which will be suitable for small scale farmers from economical and effort point of view. It's time saving and performs various activities simultaneously. To meet the demands, farmer have to use new techniques in cropping to increase the yield . The requirements of small scale agricultural equipment are that they should be simple in design, affordable for small scale peasant farmers, easy maintenance for effective handling by unskilled farmers.

TITLE:- Structural & Thermal Analysis of different Types of Rotors in Disc Brakes.

GUIDE NAME:- Prof. Abhijeet Rane

GROUP MEMBERS:- Abhishek S. Pawar
Kashyap Solanki
Omkar Vichare
Pravin Yadav

ABSTRACT:-

The structural and thermal failure of rotor which is connected to the wheel of the automobile, causes failure of brake leading to damage which is needed to be made safe. Basic aim of the project is to study the deformation of various rotors made from different materials with considerable limits. Solidworks is used for modelling and F.E.A. tool (ANSYS 16.0) is implemented to simulate various forces acting on rotor, so that it can be processed for approval & certification. Various types of rotors are analyzed so as to reduce deformation and weight of structure and improving heat dissipation for improved/increased performance.

Title:- Automated Creeper Chair

Guide Name:- Prof. Durgesh Pal

Group Members:- Anuj Doshi

Mokshit Shah

Mitt Jethva

Siddesh Dixit

Abstract

This abstract provides an exegis to all the holistic details of the automated creeper chair presented as final year project. The project would include the overhauling of currently practiced chair with some innovations and additional facility. The structural and computational analysis of the same helps users to better understand the chair and bridges the chance for future advancements in automated chair sector. The proposed research covers extensively all the parameters required for a detailed analysis of the design of the chair and completely new methods of fabrication with alternative material for cheaper production. The computational analysis is done on SoldWoks and Ansys workbench and uses the structural strength testing module and load testing modules in dynamic and static conditions. For the working mechanisms and the development of the kinematics of the chair the Linkage and Geogebra software are used and for all the computational calculations and analysis the programming language Python and matrix calculator Matlab are used.

TITLE: Design and Analysis of Suspension System.

GUIDE NAME: Prof. Durgesh Pal.

GROUP MEMBERS: Amit Chandrabali Patel
MD. Muztaba MD. Muztafa Siddiqui
Akash Manoj Singh
Arvind Baichan Singh

ABSTRACT :

In Automobile industry Suspension is the most vital Sub-System. Its main function is load transfer to the wheels and protection of driver from road shocks. The purpose of this project is to select suitable Suspension System for vehicle (i.e. Double Wishbone Suspension System) and thereafter Design, Analyze, Simulate and test the suspension system for optimum performance of the vehicle, driver safety and comfort. In this report we will present in detail about the Design procedure of the Double Wishbone A-arm. From load and shock point of view we will increase the cross-sectional area of front lower arm so that it can take up to more load and also reducing the length of the arm as per our requirement to further decrease the moment created by the forces and to increase the safety factor, we will make the upper arm from hollow to solid (optional). The springs are the important factor in any Suspension System for absorbing shocks. So, we will design it on Solidworks Software on basis of calculations done. Materials are to be considered as the backbone of any design so we will select suitable lighter weight Alloy so that the component should not be heavy. Both Kinematic and Dynamic analysis of the designed Suspension System is performed. The stability of vehicle is given importance and the system was designed durable enough to withstand shocks from harsh terrain. The Camber, Caster and Toe angle are also considered in designed process. The components are to be designed on Solidworks software and analyze on Ansys Workbench and Ansys Fluent Software. The results will be viewed by hand calculations like Finite Element Analysis and other numerical method. Double Wishbone Suspension System has vast application. Companies like Honda Motors and Mahindra & Mahindra have manufacture cars using this suspension system.

TITLE:- Design and Analysis of IC Engine Piston Using Three Different Material.

GUIDE NAME:- Prof. Durgeshkumar Pal

GROUP MEMBERS:- Maurya Umesh Brijnath
Parihar Vikram Prakash
Vishwakarma Hemant Narendra
Yadav Rupeshkumar Ramsamujha

ABSTRACT:-

Piston is the part of IC Engine which converts heat and pressure energy liberated by fuel combustion into mechanical works. Engine piston is the most complex component among the automotives. Failure of Piston due to various thermal and mechanical stresses. Usually the piston is made of aluminium alloy to make it less weight and thermal conductivity. But the aluminium alloy piston has less strength and high coefficient of thermal expansion, thus making it not suitable for high temperature experience. The materials used in this project are aluminium alloy 4032, AlSiC and AISI 4340 alloy steel material so overcome the problem faced. This three material have been selected for structural and thermal analysis of piston. This paper illustrate design procedure for a piston for 4 stroke petrol engine for Bajaj Pulsar 220cc bike. We created pressure on piston head 13.65Mpa on these three material and we applied temperature 4000oC on piston crown. Finally we find out the which one is suitable material on piston in these three materials. Design of the piston is carried out CAD/CATIA software, static and thermal analysis performed using ANSYS Software.

Title: Design & Analysis of Pressure Vessel Using Different Theories of Failure.

Guide Name: Prof. Manish Rane

Group Members : Harshad P Gohil
Pratibha Gupta
Vaibhav Patel

Abstract:

We as a group were always keen on studying and doing research in thermal and design stream of engineering. In the course of studying thermal and design related topics in previous semesters, we tend to develop interests in power plants and its wide applications. Preparing our final year project on it would also help us in building a strong foundation and stay focused on our path in pursuing masters in thermal or design engineering. There have been a lot of accidents and failure occurring in the power plants. The life of people working there is at stake. Our area of interest is design process and for the betterment of human safety we decided to work in this project.

TITLE:- DESIGN, MODELING, SIMULATION AND ANALYSIS:WORM & WORM WHEEL GEARBOX

GUIDE NAME:- Prof. Manish Rane

GROUP MEMBERS:- Gyanendra Yadav
Omkar Shirodkar
Hardik Fumakiya
Rohit Singh

ABSTRACT:-

Worm gears are crossed-axis helical gears in which the driving member (worm) has a high helix angle so that it resembles a screw. The worm can drive the mating gear (worm gear) but not vice versa. The axes of the two gears are normally at right angles. A gearbox designed using a worm and worm wheel is considerably smaller and has its drive axes at 90° to each other. Worm gears are used for transmitting power between two non-parallel, non-intersecting shafts. They can also be used for medium-speed reductions. The high transmission ratio leads to a compact solution for many applications in comparison to other types of gearing. Worm drives are used in presses, rolling mills, conveying engineering, mining industry machines, on rudders and worm drive saws. Worm gears are used on elevator and escalator drive applications due to their compact size and the non-reversibility of the gear.

The scope of this project work incorporates designing, modelling and simulation of worm and worm wheel gearbox. In addition, evaluation of stresses on worm and worm wheel using Experimental and Static Structural Analysis techniques. We are going to develop a 3 dimensional model of Worm and Worm Wheel Gearbox in Solid works 2015. Accordingly, we will study the performance behaviour in ANSYS by applying varied parameters such as materials of worm and worm wheel, modulus of elasticity with respect to the materials, resultant bending moment on worm shaft and worm wheel shaft, equivalent twisting moment on worm shaft and worm gear shaft, etc. They worked as a platform of my research work. We repeated the analysis trying combinations of mesh to achieve an approximate accurate result.

TITLE:- Foot Step Electricity Generator

PROJECT GUIDE :- PROF. VIVEK AKOLKAR

GROUP MEMBERS :- GANESH JADIYAR
SACHIN KASHID
PAVAN PARMAR
AKASH PAWAR

ABSTRACT :-

Nowadays energy and power are one of the basic needs in this modern world, as the demand of energy is increasing day by day, so the ultimate aim would be use of renewable energy sources which would cope up with the demand. But this renewable energy source must have to be adopted in practical manner by keeping an eye on the research work and also some more problems are faced including, wireless data transmission techniques are commonly used in electronic devices. For powering them connection needs to be made to the power supply through wires else power may be supplied from batteries. Batteries require charging, replacement and other maintenance efforts. For example, in the applications such as villages, border areas, forests, hilly areas, where generally remote controlled devices are used, continuous charging of the microcells is not possible by conventional charging methods. So, some alternative methods need to be developed to keep the batteries full time charged and to avoid the need of any consumable external energy source to charge the batteries. To resolve such problems, Energy harvesting technique is proposed as the best alternative. There exists variety of energy harvesting techniques but mechanical energy harvesting happens to be the most prominent. This technique utilizes mechanical components where deformations produced by different means are directly converted to electrical charge via manual energy effect. Subsequently the electrical energy can be regulated or stored for further use. The proposed work in this research recommends human energy as an alternate energy source. The motive is to obtain a pollution-free energy source and to utilize and optimize the energy being wasted.

In this project, we are going to design a setup that contains few mechanical components and electrical components that will be able to generate sufficient amount of voltage by the application of force(human) on them. In this project, we will use the rack and pinion arrangement and compound gear arrangement in the devices which will produce linear motion of rack and circular motion of pinion further connected will give required functions . In this project we just need the wooden or cast iron plate on up and down side which consists the whole assembly. The assembly consists of rack and pinion arrangement and the compound gear arrangement, coil springs. So when we walk on step the spring compress and the rack and pinion motion results in electricity generation.

Title: - SOLAR AGRICULTURAL ROBOT

Guide name: - PROF VIVEK AKOLKAR

**Group members: - WALEED SAJID KHAN
ROHIT PALAKDHARI PAL
MOHD. HARIS ANSARI
SOHAIL ZAKARIA SHAIKH**

Abstract: -

The rapid development and miniaturization of sensor devices, and the recent advances in wireless communication and networking technologies, are allowing scientists and engineers to develop networks of small sensors that can be used to continuously monitor the health and stability of the environment. Wireless Sensor Networks (WSNs) consist of several spatially distributed sensors with computing, processing and communication capabilities that can continuously sense and transmit data to a robot, where data can be processed in real time. An 8051 microcontroller and Wi-Fi module for transmitting the data to the Receiver station through Intranet. The environmental parameters and combining results water flow in the field via irrigation is controlled so that soil gets an appropriate amount of water depending on environmental conditions. Farmers today spend a lot of money on machines that help them decrease labour work and increase yield of crops. There are various machines that are available for ploughing, harvesting, spraying pesticides etc., however these machines must be manually operated to perform the required operations and moreover separate machines are used for every function. The yield and profit returns from employing this equipment are very less as compared to the investment. Another issue is the growing demands of the world's population. The World Health Organization estimates that Earth's population will touch 9 billion in 35 years which will lead to a staggering demand in increase of growth of food crops. Automation is the ideal solution to overcome all the above-mentioned shortcomings by creating machines that perform more than one operation and automating those operations to increase yield on a large scale. The robot starts its function by ploughing the field, then sows the seeds in the ploughed area and ends the process with covering the seeds sown with soil. It uses basic components like DC motors, relay and 8051 as the main controller. The mechanical design of the robot is also simple. It is programmed to carry out the above functions simultaneously. To perform the function of ploughing it is equipped with spiked wheels which are fixed in the anterior end of the robot, to sow seeds it has a container with seeds and its bottom contains a perforation to drop the seed and finally the posterior end of the robot has a sloping metal sheet or any feasible material touching the ground to cover the sown seeds with soil as it moves forward.

TITLE:- IMPLEMENTATION OF JUST-IN-TIME IN PRESS WORKING INDUSTRY

PROJECT GUIDE :- PROF. AMOL JADHAV

GROUP MEMBERS :- OJAS ACHARYA
NEHAL GUPTA
DHAVAL JAIN
ANIKET KADAM

ABSTRACT :-

The aim behind the JUST IN TIME (JIT) is waste time elimination. Waste is defined as everything that does not add value to the end product from the user's perspective. Just in Time (JIT) is a very popular strategy partly because of its success in Japanese manufacturing, Automobile industries. We intend to study Just In Time in a production industry, to achieve improved operational efficiency, waste reduction and faster response overall. Just In Time focuses on the process, not on the product. Thus it can be employed to every process within manufacturing, production and service industry. We also studied various case studies and analysis papers of Just in Time based on service and manufacturing industries. The main objective of our Project is to use successfully implementation of Just In Time in a manufacturing industry "PERFECT PRESSING", Karad, Satara, Maharashtra. Project involves collection of statistical data, identification of problems, selection and evaluation of correct tools for implementation of Just In Time (JIT). Project aim is to design a system that focuses on inventory control, set up time reduction, waste reduction and continuous improvement to achieve operational excellence. and validation of all the collected data before and after implementation of Just In Time. The concept of Just-In-Time manufacturing has several attractive features and components. Progressive companies can obtain partial benefits of Just In Time through several low cost programs and operational changes while gradually adopting the Just In Time philosophy over time. After analyzing the data, finally made a report and then submitted to the factory about the following changes to be performed