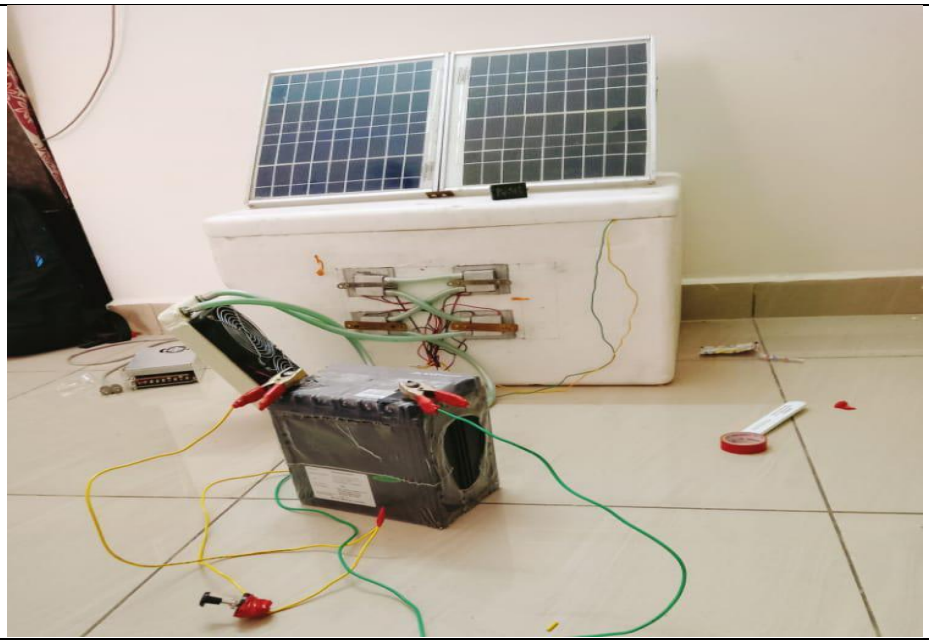
Details of Products/Prototypes/ Models developed for the A.Y. 2021-22

Department Name	Mechanical Engineering
Academic Year	2021-22
Name of the Product	DESIGN AND FABRICATION OF INDOOR AIR PURIFIER - VSR
Description (in 200 words)	Urbanization and industrialization increment the extension of populace in urban communities lastly winds up in the extreme air contamination in urban areas and in homes. Coronavirus additionally changes the ways of life of the many individuals in India. Because of these latest things, the trouble of supportable and sound indoor climate has gotten expanding consideration. Different air filtration strategies have been taken on to improve indoor air quality. Air filtration methods can eliminate air toxins and ease the indoor air quality. This venture presents a plan and manufacture of an indoor air purifier with four layers of air filtration procedures which is effective and straightforward in structure. This undertaking plans to drive the more drawn-out term of air filtration innovation innovative work in accomplishing manageable and solid structure ventilation. This venture moto is to give great quality air to each home with less expense. **Key words:** Industrialization, sustainable ,filtration, urbanization
Register Number and Name of Students	18761A0360 B. SAI TEJA REDDY 18761A0362 CH. SRINIVASU NAIDU 18761A0384 M.V.S KRISHNA REDDY 18761A03A1 SK. CHAN BASHA

Photographs	

Department Name	Mechanical Engineering
Academic Year	2021-22
Name of the Product	DESIGN AND FABRICATION OF SPACE COOLING SYSTEM BY SOLAR ENERGY AND THERMO-ELECTRIC MODULES - KLP
Description (in 200 words)	In this project we are implementing an environmental friendly air conditioning system. This setup doesn't deplete the earths limited fossil fuel reserves nor doesn't harm the environment either by depleting ozone or by contributing to global warming through the emission of greenhouse gases. The electrical energy required for cooling is supplied from a solar panel. In the recent years we have seen many problems like energy crisis and environmental degradation due to increasing in CO2 emissions and ozone layer depletion has become primarily concern to both developed and developing countries. Solar based cooling system is cost effective, clean and environment friendly system. This setup doesn't requires any refrigerants and mechanical devices like condenser, compressor and evaporator for its operation. As trend changes power consumption also increased to reduce this we are using renewable energy sources. We can produce cooling by using refrigerants like CFC's, HCFC's, Freon, ammonia which gives a maximum efficiency but the main disadvantage is that they causes the global warming and ozone depletion. In this project we produce simple and eco-friendly cooling by using peltier module and solar energy as power input. Keywords: Solar panel, Battery, Peltier modules, Cooling.
Register Number and Name of Students	18761A0387 M. Rakesh 18761A0371 G. Praveen Reddy 18761A0367 G. Vamsi 18761A0377 K. Ajit Siddu

Photographs	

Department Name	Mechanical Engineering
Academic Year	2021-22
Name of the Product	DESIGN ANDFABRICATION OFMULTI-FUNCTIONALAIRCONDITIONER - BKP
Description (in 200 words)	Fromages we have been listening few words in mechanicalengineeringcalled“new inventions” aswell as“changes in the existence” as its backbone. As long as inventions happens, human expects more comfort. Humancomfortsdealswiththeconditionsofenvironmentarounduslikeheatandcold.Onthebasisoftheseconditions,we considered the designand fabrication of “MULTI-FUNCTIONAL AIR CONDITIONING SYSTEM”. For that,we have developed a simple VCR system into multi-functional air conditioning system with some modifications.One main motive is to control the temperature around us without effecting the environmental conditions by theincorporation of cooling system in a single unit. In this project, three rival properties cold water, hot water and coldaircan beobtained. Thusthe system becomes multifunctional. Keywords:-Air conditioning,Heatpumps,Hotwater,Coldwater,andColdair.
Register Number and Name of Students	18761A0322 G. KIRANSAI 18761A0350 C.TRISHIT 18761A0307 A.B. CHANDRAREDDY 18761A0373 J.VENKATA GANESH

Photographs	

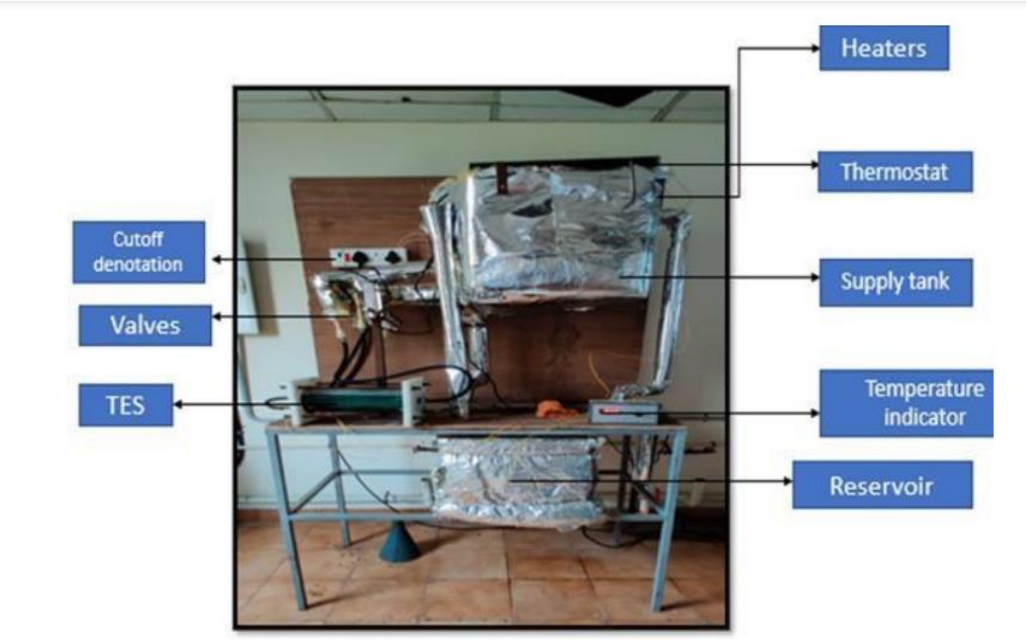
Department Name	Mechanical Engineering
Academic Year	2021-22
Name of the Product	SOLAR WATER HEATING SYSTEM WITH THERMAL ENERGY STORAGE USING PHASE CHANGE MATERIAL – Dr PVK
Description (in 200 words)	The solar energy although considered powerful and potential source of energy, but its effective usage and availability always posed problems with time-dependent and unsteady characteristic nature. In a solar water heating system, the most frequently met difficulty is to obtain the hot water at a required temperature continuously due to variation in the incident solar radiation over a day or even in the different seasons of the year. In this project an attempt is made to fabricate a solar water heating system with thermal energy storage using phase change material. The solar water heater heats raise the temperature of water during the day time on the sunny days. The solar energy in the form of hot water is then stored in the phase change material. Thermal energy stored in PCM thus can be retrieved when required. The experimental work is carried out using only water, ethylene glycol and water mixtures in 70%:30%, 60%:40% proportions respectively are used as the heat transfer fluid. Each time the heat transfer fluid after it is passed through the solar flat plate collector is sent in to the vertical PCM filled thermal energy storage (TES) unit. Thus the thermal

	stored is utilized when required by circulating cold fluid in to the TES unit.The solar collector efficiency is found to be 53.4% and the tank efficiency observed as 88.5%. for the case of ethylene glycol and water combination used as heat transfer fluid. The solar collector efficiency is 80.4% for water as the working fluid.
Register Number and Name of Students	18761A03A0 S.Rahul 18761A0398 R.CharanMohanachary 18761A03B0 V Ranga Naik 18761A0357 A Harish Reddy
Photographs	

Department Name	Mechanical Engineering
Academic Year	2021-22
Name of the Product	FABRICATION AND EXPERIMENTAL ANALYSIS OF SOLAR ELECTRIC BIKE – Dr PRK
Description (in 200 words)	A solar-powered electric bike is used to transfer the vehicle from one place to another place. There are many renewable sources are present, but solar-powered is more efficient than other sources as it is easily available in nature. A solar electric bike has a power input completely or significantly from solar panels. As the solar bike itself says that solar energy can power the battery for bike motion. Nowadays we use rechargeable battery bikes and for recharge, we use non-renewable resources. For this purpose, we fabricated the solar electric bike with back wheel as BLDC (Brushless direct current) hub motor wheel for high torque generation to check the percentage of solar energy absorbed by the solar panel and power output. There is a battery system and throttle controller system to run the motor as per the user control. There is a battery indicator for showing the level of the battery. The speed indicator is used to show the speed of the bike. A Lithium-ion (Li-ion) battery can

	provide high power to drive the bike and to know at different bike speeds (on-road speeds)–how much power is consumed and in traffic conditions how much power is wasted by the battery is calculated and compared. From the project, it is shown that the solar E-bike can run for 4 hrs and can cover a distance of 45 km with an average speed of 40 kmph. Keywords: Electric bike, Solar panel, Li-ion battery, Throttle controller, BLDC hub motor, Controller.
Register Number and Name of Students	18761A0318K. VISHNU VARDHAN 18761A0332M. PAVAN KUMAR 18761A0314D. PRANEETH REDDY 18761A0315G. SYAM
Photographs	

Department Name	Mechanical Engineering
Academic Year	2021-22
Name of the Product	DEVELOPMENT OF BACK PROPAGATION NEURAL NETWORK FOR THE OPTIMIZATION OF THERMAL ENERGY STORAGE SYSTEM USING PHASE CHANGE MATERIALS –DR PVK
Description (in 200 words)	The Backpropagation Artificial Neural Network model was used to determine the performance of a thermal energy storage system by using phase change material. Earlier obtained experimental observations was used to train the

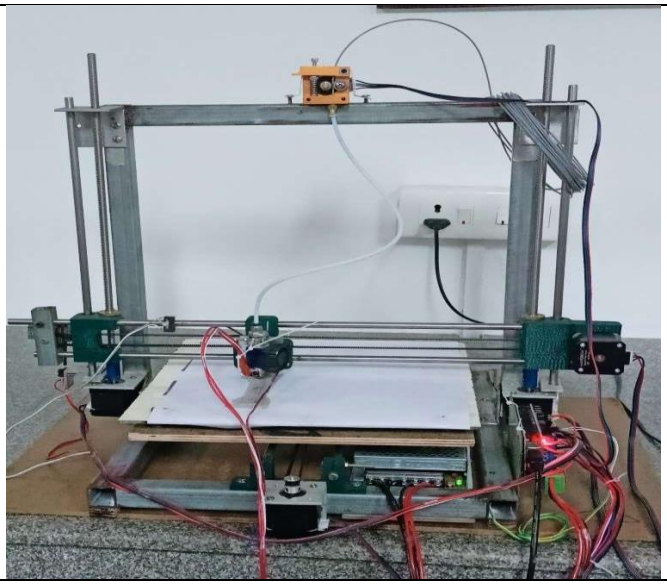
	artificial neural network. Time, temperature of PCM at different levels with respect to time , ambient temperature and inlet water temperature were used in the input layer of the network. The outlet temperature of water was in the output layer. The attained results were substantiated against formerly obtained experimental observations. It was observed that Artificial Neural Network method could be used for the estimation the outlet temperature with excellent accuracy with the coefficient of determination of the backpropagation network. Keywords: Thermal energy storage, Phase change material, Artificial Neural Network.
Register Number and Name of Students	18761A0354 Y.Sai Manikanta 18761A0306B.Veera Subhash 18761A0328K.Phani Kumar Likhith 18761A0355Y.Sujan
Photographs	

Department Name	Mechanical Engineering
Academic Year	2021-22
Name of the Product	MODELLING AND FABRICATION OF AUTOMATIC MULTIPURPOSE AGRICULTURE MACHINE BY USING BLUETOOTH SENSOR- Dr SPR
Description (in 200 words)	Presently, small land holding farmers use work bulls mostly for land preparation. Use of hand tools for cultivation is still leading in India because tractors need resources which many farmers cannot afford. The need for improvisation in agriculture is very much essential, it is important to fill the gap between farmers and technology implementation. Generally

	cultivation of any crop involves various steps like seed selection, field preparation, fertilizing, sowing, irrigation, germination, thinning and filling, weed removal, vegetative stage, flowering stage, pesticide spraying, fruit or pod formation stage, harvesting and threshing. Farmer has to use various agricultural equipments and labors for caring out those steps, our purpose is to combine all the individual tools to provide farmers with multipurpose equipment and to run automatically with out any stress which implements all the scientific farming techniques and specifications and suitable for all type of seed to seed cultivation with as minimum cost as possible. This project work is focused on the fabrication of multipurpose equipment and automate the machine which is used for land preparation, sowing, fertilizing, leveling and weed removal process. The multi-crop planter has the capability of delivering the seeds precisely with uniform depth in the furrow, and also with uniform spacing between the seeds.Seed metering disc was designed to be interchangeable to allow for sowing of the different varieties of seeds. The multipurpose agricultural equipment is very simple to use, the various adjustments are made with ease, and it is maintenance free. Key words: multipurpose, labour, Automation
Register Number and Name of Students	18761A0327K.Siva Durga Rao 18761A0325K.Aparna 19765A0304B.Hari Babu 18761A0324K.Tarun
Photographs	

Department Name	Mechanical Engineering
Academic Year	2021-22
Name of the Product	MODELLING AND FABRICATION OF LOW-COST GO-KART ELECTRIC VEHICLE - JSR
Description (in 200 words)	The Go kart vehicle lacks a differential and suspension. AutoCAD software is used for design modelling. The go kart's design and fabrication are made in such a way that it can be operated by anyone. The prototype was created to meet the low-cost requirement. The go kart electric vehicle has all the active functions required for control. With the goal of reducing or eliminating harmful gases in the air caused by fuel use. To create a pollution-free environment, we designed and manufactured electric go karts. In general, Go-kart vehicles are powered by IC engines, so we designed and built a Go kart vehicle that uses an electric motor. The primary goal is to save money and build a lightweight vehicle. These Go kart vehicles are commonly used in racing sports. Keywords: Go-Kart, IC engines, differential, suspension.
Register Number and Name of Students	18761A0345 S. Gopi Rakesh 18761A0326K. Sasikanth 18761A0347V. Sasi Kumar
	18761A0331M. Pavan Kumar
Photographs	

Department Name	Mechanical Engineering
Academic Year	2021-22
Name of the Product	FABRICATION OF FUSED DEPOSITION MODELLING (FDM)-3D PRINTER - BSK
Description	Fuseddepositionmodelling

(in 200 words)	(FDM)isoneofthemostextensivelyusedadditivemanufacturingmethod. Ithasbeenoperatedintheautomobilemanufacturing,extendingfromtesti ngmodels,lightweight tools to final functional components. 3D printing approach is a method of makinga solid object from a digital figure that we drawn . here the number of layers are combined toform a object. Old fashioned machining procedures depend on the subtraction of material bythe methods such as cutting or drilling but in 3D printing layers are added successively.Therefore, it follows a layering procedure where it creates layer by layer to complete a wholeobject until it get finished. In this way 3D printing allows us to move away from the massproduction line to one of a kind customizable production. This project went further to usenumerousdesignsoftware'sprimarilyCatiaV5to designandmodelthenumerouscomponentportions to be printed, the model created in CAD file is converted into STL file while the curaultimakersoftwareinterpretedthedesignmodelsinalanguagethe3D printerwouldrecognize. Now a days the usage of 3D printers is more as there is a more usage of this technology ineveryarea. Inindustries,medicalfield,Militaryandinconstructionssites everyareathereisaneed of it. So, Here we are going to build a economic Fused deposition modelling 3D printerwithbetter performance. Keywords:FusedDepositionModelling(FDM),Prosthetics,StereoLitho graphy(STL)
Register Number and Name of Students	18761A0310B.Ganesh 18761A0302B.Chanti 18761A0337P. Chandra SekharRao 18761A0338R.Venkata NikhilBharath
Photograph s	

Department Name	Mechanical Engineering
Academic Year	2021-22
Name of the Product	FABRICATION AND ANALYSIS OF ATMOSPHERIC AIR WATER GENERATOR– Dr VDR
Description (in 200 words)	Water issues have become a disturbing worldwide problem in the current era, but it is more complicated in the arid areas, where it rains rarely and there is hardly any fresh water source at all. Hence, there is a serious need to find new, sustainable, alternative ways to get fresh water. Therefore, investigations of innovative and environmentally friendly ways to produce potable water are very much essential. One of the most interesting methods to get clean water is harvesting humidity from thin air. Many new initiatives have been taken to develop this old way of getting water, and in so many ways it has potential to solve the challenge of getting a new, sustainable, and renewable source of fresh water in drought areas. In a cooling condensation method, a compressor circulates refrigerant through a condenser and then an evaporator coil which cools the air surrounding it. This lowers the air temperature to its dew point, causing water to condense. A controlled-speed fan pushes filtered air over the coil. The resulting water is then passed into a holding tank with purification and filtration system to help keep the water pure and reduce the risk posed by viruses and bacteria which may be collected from the ambient air on the evaporator coil by the condensing water. The rate at which water can be produced depends on relative humidity and ambient air temperature and size of the compressor. Atmospheric water generators become more effective as relative humidity and air temperature increase. From the detailed literature, solar energy-based water extractor can generate 20-25 litres of water per day. Therefore, the current project is mainly focusses on the harvesting waster from the atmospheric air by the application of refrigeration principles and solar energy utilization. This method for harness of water from the atmospheric air is more suitable for the coastal regions as well as remote islands. Keywords: Solar energy, Water extraction, absorption, liquid desiccant, dew collection.
Register Number and Name of Students	18761A0329 K.MADHULIKA 19765A0310P.KUMAR 19765A0303B.DINESH KUMAR

Photographs	

Department Name	Mechanical Engineering
Academic Year	2021-22
Name of the Product	DESIGN AND FABRICATION OF MQL SETUP & EXPERIMENTAL INVESTIGATION ON TURNING OF SUPER DUPLEX STEEL-Dr KM
Description (in 200 words)	MQI (Minimum Quantity Lubrication) is lowered to the hare mirimum required for successful lubrication. Current production trends necessitate extensive use of cutting fluids, resulting in adverse climatic changes and increasing industry expenses, Modern manufacturing businesses are looking for new ways to meet the demands for faster machining rates, less waste, and improved product quality while also lowering manufacturing costs. Material removal rate, and surface roughness of the work piece machined with coated tool and uncoated tools are all evaluated. Cutting speed, feed rate, and cut depth, pressure are the input parameters. An aerosol mixture of air and oil was used to give the least amount of lubrication. To assess the relative performance turning with the MQL applicator, an investigation was conducted in a dry condition under the identical conditions. When compared to dry turning, the MQL applicator system for turning Super Duplex Stainless Steel UNS 32750 has shown to be more effective. The MQL technique significantly improves cutting performance in terms of increasing tool life and improving machined component quality. Keywords: MQL, SUPER DUPLEX, MRR, DOC, Ra..

Register Number and Name of Students	18761A0303 Vamsi Satya 18761A0346S. Sai Kiriti 19765A0301Abdul Mubeen 18761A0351V. Veerla Raju
Photographs	

Department Name	Mechanical Engineering
Academic Year	2021-22
Name of the Product	DESIGN AND VIBRATION ANALYSIS OF CELLULAR CORE SANDWICH PANELS WITH DIFFERENT INFILL CORE PATTERNS IN WIRE ARC ADDITIVE MANUFACTURING-KVV
Description (in 200 words)	The project consists of modeling, FE analysis, Fabrication & experimental modal analysis of cellular core sandwich panels with different infill patterns. A total of 27 specimens have been selected for each infill pattern (honeycomb, rectangular & circular) for various cell length (1.25mm, 2.5mm & 3.75 mm), foil thickness (0.433mm, 0.625mm & 0.866mm) face sheet thickness (1mm, 1.25mm & 1.5 mm). The modeling of panels was done using CATIA V5 software and FE analysis for maximum equivalent stress & modal frequencies is performed in ANSYS software and best combination was selected which subjected to less maximum stress using Minitab software. The WAAM 3D printer which was designed & fabricated by own. The specimen with best combination has manufactured using this machine. The experimental modal analysis was performed for fundamental natural frequency.
Register Number and Name of Students	19765A0308N.MIDHUN 18765A0342SK.ASIF 19765A0306 G.ANIL

Photographs