

**L.D.College of Engineering**  
**Department of Instrumentation and control Engineering**  
**Project - II Abstract Summary 2020**

Sr no	Project Title	Guide	Enroll no	Student Name	Abstract	Remarks
1	Liquid level control system using microcontroller based PID controller	Dr.R.C.Patel	160280117014	Gohil Nayanpalsinh Bhavsinhbhai	Liquid Level Controller by using AVR Microcontroller will help in controlling the motor by sensing the level of the liquid in our tank. The project about to control the Liquid level in a tank or any other container. The upper system monitors the level of the tank and automatically switches ON the motor whenever the tank is fully empty. The system mainly works on the principle of load cell in which applied load (weight of tank) is converted into the electrical signal and this signal gives height of the liquid. Based on the outputs of these wires, AVR microcontroller displays level liquid on LCD as well as controls of the motor. The PID controlled algorithm helps to control parameter as per required set points with minimal overshoot, error and tolerance.	UDP
			160280117010	Devmurari Yogesh Parshotambhai		
			160280117008	Chavada Parijeetsinh Rajendrasinh		
2	MICRO CONTROLLER BASED MULTI CHANNEL TEMPERATURE MEASUREMENT AND CONTROL USING PID CONTROL	Dr.R.C.Patel	160280117060	Vaghasiya Meet Kiritbhai	In almost all the process industries temperature measurement is necessary to maintain the quality of the product, so in this project the temperature measurement system using PT1000 as a temperature sensor, and using micro controller to take the value of temperature at specific time and according to it taking the PID control action to control temperature of the system.in this project we have included the temperature measurement from different location using multi-channel input we can measure the temperature from different location simultaneously and take the control action accordingly as per Requirement and PID control used for controlling temperature is made using microcontroller which will also continuously monitor the value of temperature from different location and LCD will display the value of temperature of different location turn by turn.	UDP
			160280117001	Ajudiya Nirav Bharatbhai		
			160280117005	Bhaliya Jaimin Vinubhai		
3	Smart ID Card	Prof.V.P.Patel	160280117032	Parmar Pranay	In many MNCs, employs are not allowed to carry their mobile phones with them. There are some areas where use of mobile phones is restricted. So, under those conditions, there exists vast communication gap between Master and Slave. So, this project reduces the communication gap. The most important portion or the back bone of the project is the communication part. Here, in this project the Idea is based on the principal of Master and Slave. A person at the Managerial post have the excess and have the IP addresses of every particular individual with whom he is going to communicate and through the Wi-fi module they communicate with each other. The message is been displayed on the LCD screen on the ID Card. Here, we have used Node MCU which acts as a communication device over here. Node MCU is a combination of Controller and Wi-fi Module. So, through same Wi-fi Connectivity one can easily communicate. Here, we have also included Digital Authenticated Security Control System with the help of RFID Sensors. The Next Thing is the GPS System Through which one can monitor persons exact location. So, from its feature we can say it is working smartly. Also, we have included the safety alarm System in it.	UDP
			160280117056	Soni Jainish Mahendrakumar		
			160280117022	Kothari Kenil Kiranbhai		
4	Robotic Assistant	Prof.V.P.Patel	160280117034	Patel Bhavik Bharatbhai	The most redundant and cumbersome task in any manufacturing industry is the frequent need of relocating and reorganizing resources. In most industries and organizations this task is done manually. So, write endto present system of robot(s) which does this task automatically for the users as and when theyrequire.Once the robot gets the request from the user it queues the request in its buffer.The intended users are registered to the system database by the admin. The permitted user can log in to the application using his/her credentials. The user can make request to send or receive an object. The request can be made through the application interface provided. On receiving the request the robot uses its navigation mechanisms to receive the object from sender, and delivers it to the intended receiver. Additional security is provided by including biometric lock mechanism.	UDP
			160280117043			
			160280117046	Rathod Dhruv Pareshbhai		
5	DUAL AXIS SOLAR TRACKING SYSTEM WITH WEATHER SENSOR	Prof.V.V.Patel	170283117009	Mevada Dhvani	Solar energy is rapidly gaining notoriety as an important means of expanding renewable energy resources . As such, it is vital that those in engineering field understand the technologies associated with this area . The Project will include the design and construction of microcontroller based solar panel tracking system. Solar tracking allows more energy to be produced because the solar array is able to remain aligned to the sun. This system build upon topics learns in this course. A working system will ultimately be demonstrated to validate the design .Problems and possible improvement will also be presented.	UDP
			170283117013	Patel Preksha Chiragbhai		
			170283117011	Patel Nauman Nazeer		

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6	Density based automatic traffic control system	Prof.V.V.Patel	160280117038	Patel Fenil Dilipkumar	Nowdays in India traffic is biggest problem so as an engineer we have to solve this problem based on our knowledge. It is vital that those in engineering field understand the technologies associated with this area.The project will include the design and construction of microcontroller based density based traffic light control system. This system build upon topics learns in this course. A working system will ultimately be demonstrated to validate the design problems and possible improvement will also be presented.	UDP
			160280117031	Parmar Mayur Natvarlal		
			160280117006	Chaudhari Dakshkumar Cheljibhai		
7	Techocleaner	Dr.A.K.Shah	160280117026	Nayan Bhola	With the advancement of technology, robots are getting more attention of researches to make life of mankind comfortable. This project presents the design, development and fabrication of prototype automatic floor cleaner. This robot operates autonomous mode with additional features like dirt container with air vacuum mechanism and pick and place mechanism. This work is very useful in improving life style of mankind.	SSIP
			160280117027	Nihar Dhokai		
8	TEMPERATURE MEASUREMENT AND CONTROLLER USING PID	Prof.U.V.Shah	160280117020	Kasvala Ashish	In almost all the process industries temperature measurement is necessary to maintain the quality of the product, so in this project we have made the temperature measurement system using PT100 as a temperature sensor, and using micro controller to take the value of temperature at specific time and according to it taking the PID control action to control temperature of the system.in this project we have included the temperature measurement from different location using multi-channel input we can measure the temperature from different location simultaneously and take the control action accordingly as per requirement and PID controller used to control the temperature is created using a microcontroller, which continuously monitors the temperature value from different locations and displays the temperature value of the different location as an alternative to the LCD.	UDP
			160280117011	Finaviya Hirenkumar Rameshbhai		
			160280117015	Jethva Mishalkumar Rasikbhai		
9	DC motor speed control	Prof.S.N.Shah	160280117009	Dahivalkar Parikshit Sanjay	In mechanical system, speed varies with number of task so speed control is necessary to do mechanical work in a proper way and that's why our project is best suited to control the speed of the motor with very low cost technique.The Project DC Motor Speed Control is uses Arduino micro controller The main feature of this project is that it takes the input in Arduino serially and accordingly changes the speed of the DC Motor. Here a potentiometer can also be used to give input to the Arduino program which then is compared with the speed of the DC Motor by using PID Controller and according to it, the speed of the motor is changed. We can also control the speed of the DC Motor with the help of Bluetooth by using our mobiles. Here, we can connect the Arduino with a Bluetooth modem as well as install a Bluetooth Arduino app in the mobile. So, we can give the input i.e. set point to the DC Motor with our mobile application of Arduino Bluetooth and the PID Controller will receive and compare the set point given by us and accordingly , it will increase or decrease the speed of the DC Motor. The biggest advantage is that it is very much precise and economic in nature which makes it affordable and preferable to use.	UDP
			160280117023	Koyani Tejas Mahendrabhai		
10	Automatic Water Distribution System using PLC	Prof.S.N.Shah	170283117004	Gondaliya Jaydip	This proposed automated water distribution system is used to distribute the municipal water equally to all street pipe line. So that everyone will get the equal amount of water. The setpoint is fixed for each pipe line. The water from the storage tank is measured with the help of level sensor. Flow sensor measures the flow rate of the water. Solenoid valve is used to open and close the valve automatically. If the flow rate reaches its set point, solenoid will be turned OFF and it will be turned ON after 24 hours later. Here we also identify the water theft accurately during the distribution time period. The system consists of PLC. PLC is used to control the distribution of water. The overall system is connected to PLC with the help of RS 232 cabel. PLC gives the signal to the solenoid valve according to the set point written in the program.	UDP
			170283117006	Kathiriya Divyang Ghanshyambhai		

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11	Heat Exchanger control using PLC	Prof.M.C.Patel	170283117008	Kumare Prashant	Heat Exchanging Process using PLC system is used in many industries like Chemical Plants, Petrochemical, Pharmaceutical, Refrigeration, Power Station, Refiners, etc. Usually this type of process contain many type of Transducers, Metering instrument, Transmitter, and many types of Heat exchanging process, PLC, and other necessary devices used in process. Heat Exchanging Process using PLC system has no manually interference it has many stages like Level measurement and control, Heat transfer process, Temperature control. In this report we only represent the demo of Heat Exchanging Process it's not for industrial level project. Some help is taken from internet to do thisproject.It is used in many industries and panels are used in industries for the control purpose but we have tried to minimize it according to the devices and tried to represent the demo of our project.	UDP
			170283117012	Patel Parth Vasantbhai		
			170283117015	Rohan Rathod		
12	Smart Wearable Device	Prof.M.C.Patel	160280117019	Kapoor Khushboo Kapil	Travellingforblindpeople,oldpeople,anddifferentlyabledcanbeavery difficult task. In today's time, with so much traffic on roads, it can be difficult for them to cross roads, reach their destination, that too hassle-free. Also, anotherproblem involvespeoplecommutingontwowheelers,iftheydon't know the route it becomes very difficult for them to take out their phone and check theroute very now and then.This canalso causeaccidents.For this, we have designed a solution that can work for this category of civilians as well. Smart wearable device includes smart shoes that can solve the problems stated above. It will guide them with their routeandnotifywhenthe destinationisreached. Secondly, for two-wheeler drivers, they can set their destination on maps and when they start the shoe's vibration will guide them through their route. For e.g.when we have to go left(right),the shoe on the left(right)leg will vibrate. This will solve their problem of stopping every time and checking the maps.	UDP
			160280117024	Lunia Chandan Dilip		
13	ACCIDENT DETECTION AND NOTIFICATION SYSTEM FOR MOTOR - VEHICLES	Prof.K.R.Joshi	150280117048	Rathod Pragnesh	In today's world, the inventions of powerful automobile engines haveincreased the speed of transportation. As a result the situation hasbecome more vulnerable to the fatal accidents. In order to reduce thesefatalities, the Emergency Medical Service (EMS) has to be quickenough. To make Emergency Services faster, an Accident Detectionand Notification System is required. In a developing country like India,there is a strong need of such autonomous system. This work aims at development of such robust AccidentDetection and Notification System that can be delivered as an end-userproduct for the welfare of Indian society.	UDP
			160280117035	Patel Bhavinbhai Maganbhai		
			160280117030	Parmar Jigneshkumar Jayendrabhai		
14	Digital Visiting Card System	Prof.N.A.Kanani	160280117054	Solanki Malharsinh Aniruddhsinh	The project about development of a digital visiting card system to enhance the business strategies in different form. Now a days, everything is getting digital. World is entering into a digital phase where every document and data is converted into digital format, so why not the way to spread the business digitally in easy and appropriate way! It has numerous advantages over physical card such asThe problem of misplacement of card is eradicated through this.Information can be easily updated such address, or adding any extra information like e-mail or any other branch's detail.It is environment friendly, as it saves time and money associated with getting physical cards printed.	UDP
			160280117053	Solanki Hiralkuvarba Indrasinh		
			160280117055	Sonagara Ankithkumar Ukabhai		
15	Wood fire boiler	Prof.U.G.Suagiya	170283117014	Patel Ushaben	The project is based on wood fire boiler. The boiler is that a fuel-burning apparatus or container for heating water.The purpose of our project to generate steam with the help of Water level controller. We used water level controller to measure level of water in the boiler. We can measure water level based on timing or proximity sensor both. According to level of water we can control the flow of water. It is useful in different kind of applications like chemical industries, food industries, paper industries, paper industries, feed industries, textile industries.	UDP
			170283117003	Gamit Ganeshbhai Nileshbhai		
			170283117017	SOLANKI SIDDHARTH RAJENDRAKUMAR		

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16	Development of Data Acquisition system for clutch testing	Dr.M.T.Thakker	170283117018	Tandel Pavitrakumar	A low-cost data acquisition system, for use in sensing applications, is presented here. The system uses ATmega328p microcontroller to implement data acquisition strategy and to interface analog sensor data from signal processing unit, to PC for further processing. Here we are going to acquire data of temperature and speed of the clutch through particular sensors. From this data acquisition system we can monitor the dynamic behavior changes of clutch. We have used mlx90614 ESF-BCC contactless sensor for temperature measurement and REES52 Linear magnetic sensor for speed measurement. Python programming is used to process the incoming digital data and provide the required graphical-interface. The graphical data provided by the system is stored separately in a spreadsheet, which can be later used for processing and analyzing. The results obtained by the system are linear and stable.	Interdisciplinary
			170283117005	Kamaliya Harshad Rameshbhai		
			170283117010	Nakum Vishal Vitthalbhai		
17	Robotic arm	Dr.M.T.Thakker	160280117051	Shah Priyan Dharmeshkumar	Ships use fuel, oils, sludge, sewage, water and other fluids, which are stored in tanks. When stored in tanks, these fluids tend to stick inside the tanks forming layers of semisolid substance. Moreover, many impurities of these fluids settle down and stick to the surface of the tanks. Tanks like these are almost inaccessible due to ribs, pipes and cables. Realizing that people actually need to go into them to carry out inspection work was what motivated me to develop the robotic arm. The proposed robot will clean the water tank without much effort. However, a human part is needed to take the robot to the location of the tank and to place the robot inside the tank. Once placed in the tank, the robot cleans the tank autonomously and the user can take out the robot after the completion of the process. The robot takes care of the operations like cleaning, brushing, sucking etc.	Interdisciplinary
			160280117041	Patel Mohit Jitendrabhai		
			160280117048	Sanepara Parthkumar Bhikhubhai		
18	Density meter	Prof.L.S.Patel	160280117016	Jinjala Sanjaykumar Dulabhai	In most chemical, pharmaceutical and plastic plants and industries density measurement plays vital role in monitoring and controlling process parameters and our prototype is meant for that's only. The project is special one as it measures both solid & liquid densities in a single unified device. The market price of these existing products is costly. However, proposed project is very cost effective. In order to make it economical transducer (HX711), load cell as sensor, micro controller. Product is very portable as well as it having many features and use in multipurpose application like measurement of various liquid density as well as solids.	SSIP
			160280117033	Parmar Vishal		
			160280117017	Kalathiya Jenishkumar Bhupatbhai		
			160280117064	Vivekjyoti Bhowmik		
19	GUI development using WINCC for cryoplant termination cold box	Prof.L.S.Patel	160280117025	Manipuzha Prithviraj Sankaran	The Cryoplant termination cold box (CTCB), part of ITER-INDIA deliverable, works as intermediate cold box between Cryoplant and clients with possibility of inter-connection of LHE plants and 80 K plants for magnet and Cryopump clients as per requirement. PLC programming and GUI for CTCB have been already developed for level 1 (I/O objects), level 2 (field objects), and level 3 (PID controller), using CODAC core system (mini-CODAC). PLC programming for level 4 (interlock logic) & level 5 (sequence programming), is under development, will be used during the final cold test of CTCB. Before final cold test, instrumentations (i.e. control valves, pressure transmitter, flow transmitter, temperature transmitters, heater operation etc.) of CTCB have to be tested at room temperature for its functionality check. Mini-CODAC is Linux based software package developed and distributed specifically for ITER project, includes EPICS (Experimental Physics and Industrial Control System), for Supervisory control and data acquisition (SCADA) development. A simplified GUI may be required to check the functionality of instrumentation of CTCB as Mini-CODAC level 4 & 5 programming may be in developing phase during CTCB test. WINCC, industrial proven SCADA software, based on windows operating system, is foreseen to be used as redundant system to Mini-CODAC if required. Therefore, another GUI can be developed in WINCC for redundancy purpose; will be useful to verify the functionality of instrumentation based on requirement.	IDP
	ANUJ GARG IPR 8980301523 //http://www.ipr.res.in/documents/429.html		160280117028	Palkhiwala Shubham Darshitkumar		

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20	Smart greenhouse over IOT platform	Prof.D.V Raninga	160280117012	Gadhethariya Abhishek Upendrabhai	Internet of Things is one of the most important technologies of the 21st century. Smart green House system is basically a system in which various sensors are used for controlling and monitoring various parameters inside a greenhouse such as temperature, pressure, humidity, soil moisture, PH sensors etc. And green house is basically a place or we can call it an environment where plants like vegetables and flower and grown and they are usually covered with glass or "translucent plastic roofs". The purpose of this project is to design an easy, easy to install, user-friendly to monitor and trace the values of parameters such as temperature, moisture, natural sunlight which are continually monitored and controlled with an aim to optimize them for getting maximum possible plant increase and yield.	UDP
			160280117002	Antala Darshan Sureshbhai		
			160280117018	Kanani Sagar Bharatbhai		
21	Imitating robotic arm	Prof.D.V Raninga	160280117052	Shah Shivam Miteshkumar	The project is mainly based on parts of robotic arm which are controlled by a potentiometer. Every joint is controlled by a servo motor. The movement servo motor makes in clockwise and anticlockwise condition rotates that joint of the robotic arm. These joints can be mainly classified as: Base, Elbow, Wrist and Gripper. The Arduino UNO card works as a microprocessor which was programmed using the IDE software to function it as a controlling center. The data between the potentiometer and servo motors are transported through an Arduino UNO Analog Input and Digital Input/Output pins. Four potentiometers, each controlling movement of base, elbow, wrist and gripper of the robotic arm. Besides, it does have a record/play function. The activities done by the robotic arm is recorded by pressing record function at every activity. The activities will be saved in microcontroller in the form of digital data. When play function will be pressed, these activities will be done by the robotic arm turn by turn.	UDP
			160280117042	Patel Tirth Navnitkumar		
			160280117061	Vala Vishvadeepsinh Hardevsinh		
22	SMART WASTE WATER RECYCLING SYSTEM WITH RAIN WATER HARVESTING FOR DOMESTIC USE	Prof.H.K.Shastrri	160280117013	Gamit Meghnil	At the rate in which India population is increasing, it is said that India will surely replace china from its number 1 position of most densely populated country of the world after 20-30. these will lead to high rate of consumption of most valuable natural resource 'water' resulting in augmentation of pressures on the permitted freshwater resources. ancient method of damming river and transporting water to urban area has its own issues of eternal troubles of social and political. in order to conserve and meet our daily demand of water requirement, we need to think for alternative cost effective and relatively easier technological methods of conserving water. smart wastewater recycling and rain water harvesting system is one of the best methods fulfilling thoserequirements. To recycle waste water and rain water harvesting at domestic stage and purification of water for that purpose new approach with real time smart function has been proposed the waste water derived from human activities such as bath, laundry, dish washing, etc. is called domestic waste. and rainwater harvesting is the most common technique of rainwater harvesting for domestic consumption. in rural areas, this is most often done at small-scale. it is a simple, low-cost technique that requires minimum specific expertise or knowledge and offers many benefits.	UDP
			160280117007	Chaudhary Akashkumar Manojbhai		
			150280117056	Tadavi Hiteshkumar Khushalbhai		
23	AUTOMATIC COLOUR BASED OBJECT SORTING MACHINE	Prof.H.K.Shastrri	160280117029	Panchal Ankitbhai	Sorting of products is a very difficult industrial process. Continuous manual sorting creates consistency issues. This paper describes a working prototype designed for automatic sorting of objects based on the color. TCS3200 sensor was used to detect the color of the product and the microcontroller was used to control the overall process. The identification of the color is based on the frequency analysis of the output of TCS3200 sensor. Servo Motor was used, either each controlled by separate DC motors. For example, in Thermal Power Station, electromagnetic sorting technique is used to sort ferromagnetic materials from coal. This project consists of components such some basic components color sensors, electronic system and motors. The objects are being sorted according to their respective color.	UDP
			160280117044	Prajapati Parth Harshadbhai		
			160280117039	Patel Hardikkumar Maheshbhai		