

# Kaizen '19 L. D. College of Engineering 11-12 April 2019

## Kaizen 2K19

### INSTRUMENTATION & CONTROL ENGINEERING DEPARTMENT

#### Event Description

The event KIAZEN – 2K19 was celebrated by Instrumentation & Control Engineering Department of the institute with great enthusiasm and support by all faculty members and students. The event was inaugurated with formal welcome and introduction of the juries by the Head of Department, Prof. M. T. Thakker.

Total **35 UG group** projects of **71 students** and **7 individual projects of PG students** were on display. The venue was full of students, staff, parents and visitors almost throughout the one and half day. The students were very happy to show case their work to all the visitors. The environment had been very vibrant on that day.

**Mr. Pradip Panchal, Senior Engineering, Institute for Plasma Research and Mr. Jitendra B. Gajjar, Director of Ameer Power Drives had extended their help as juries for the event.** Both the judges have taken keen interest in observing each and every project of UG and PG students. The judges were delighted to see the overwhelming response of the students.



**Formal inauguration and welcome of judges**

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**IC Department Faculties with U.G. & P.G. Students**



**UG Students Projects & PG Students Dissertation**

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## Under Graduate Winners

### First winner

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**Project Title: IOT Based Human Detection System on Autonomous Surveillance Drone Platform**

**Prepared by:**

Name	Enrollment no	Contact No.	Email I.D.
Fenil Parmar	150280117028	8200823589	fenilparmar0511@gmail.com
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**Guided by:** Prof. Chandni V. Shah

**ABSTRACT: -**

In our project we are making one quad-copter which is capable of fully autonomous flying on the predefined paths. Our drone has many smart sensors like GPS system, compass system, accelerometer, telemetry system etc. Here as per our specific requirement of the project we have select the latest generation flight controller PIXHAWK. Which is compatible with the ground control station application MISSION PLANNER. And for manually operate the drone we have advanced remote controller FS-i6.

On the other hand we have implemented the artificial neural network for detecting the human presence in the surveillance area using raspberry pi and tensorflow library. We are also using the virtual network computing (VNC) here so that we can access the live stream of the area of surveillance at anywhere in the world.

In the field of security and surveillance our project can be useful. In forest, to detect any illegal activities like animal show, hunting, wood cutting etc this system can be useful for regular patrolling. In agriculture field this drone can be use for seedling, pesticides etc.

# Kaizen '19 L. D. College of Engineering 11-12 April 2019

**Second winner**

**Project Title: Dual Axis Solar Panel Tracking System Based on Arduino**

**Prepared by:**

<b>Name</b>	<b>Enrollment no</b>	<b>Contact No.</b>	<b>Email I.D.</b>
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**Guided by: Prof. Kruti R. Joshi**

**ABSTRACT: -**

The green energy also called the renewable energy, has gained much attention nowadays. Among the renewable energy solutions, solar energy is the very vital source that can be used to generate power. Electricity from the sun can be converted through photovoltaic (PV) module. The efficiency of solar module depends on sun intensity, if the intensity is more than efficiency is more. Since the position of sun continuously changes throughout the day, the intensity of sun rays is not uniform on PV module. So, for getting more sun rays on PV module solar tracker plays a much vital role.

Solar tracking allow more energy to be produce because the solar array is able to remain aligned to the sun.

A solar tracker is a device for operating a solar photovoltaic panel, especially in solar cell applications and requires high degree of accuracy to ensure that the concentrated sunlight is dedicated precisely on to the power device.

The rays from the sun should fall perpendicularly onto the solar panels to maximize the capture of the rays and this is done by pointing the solar panels towards the sun and following its path across the sky. The solar tracking systems - Dual Axis Tracker.

The design details of Dual Axis Tracker are described which detect the sunlight using Light Dependent Resistor (LDR) sensors. The control circuit for the systems is based on Microcontroller which is programmed to detect the sunlight through the LDR sensors and then actuate the DC motor using motor driver to position the solar panel where it can receive the maximum sunlight.



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## **Third winner**

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**Project Title: SOIL TESTING INSTRUMENT FOR AGRICULTURE**

**Prepared by:**

<b>Name</b>	<b>Enrollment no</b>	<b>Contact No.</b>	<b>Email I.D.</b>
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**Guided by: Prof. Nidhi A. Kanani**

**ABSTRACT: -**

Agriculture is one of the major backbones of India. The sector is one of the largest employment providers. Though there is a large area under cultivation, we don't get maximum yield. The primitive method is collecting the soil sample and it has been tested in the laboratories. The problem faced in the agriculture field is that the farmers are suffering much to get the farm lands survey reports quickly. Lack of facility to suggest fertilizers for the chosen plant. Lab testing method will not able to visualize the soil parameters for the live monitoring.

The idea is to design a portable soil testing equipment/instrument which can be used for testing of all the types of soils, along with that it can also show the path to the rural farming community to enhance some of the traditional techniques and the best output can be achieved. The amount of proportion of moisture, pH and nitrogen is measured and will be displayed on the LCD screen, making it user friendly. According to the amount of proportion of chemical contents in the soil the plant best suitable for that particular soil can be planted and the best outcome can be gained from the sector.

# **Kaizen '19 L. D. College of Engineering 11-12 April 2019**

## **PG Winner Detail**

**Thesis Title:** Optimal design and implementation of a digital controller on an embedded system for a frequent set-point & load changes

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**Prepared by:** D Arjun Rao

**Guided by:** Prof. V. P. Patel

### **ABSTRACT: -**

The aim of this work is to design a Set-point weighted PID controller that is of an adaptive nature; so that it can tackle varying set-point and changing loads, with the intention of solving the problem of set-point kick and any other problems resulting because of in-operation load/disturbances variations.

The system being proposed is a microcontroller (STM32F4) based controller programmed using Keil. The data required for initial tuning is gained using MATLAB. The result being, the improved performance over regular ZN-tuned PID when dealing with sudden set-point/load changes.

Media coverage

# 1800 સ્ટુડન્ટસના 540 પ્રોજેક્ટ રજૂ થશે કાયઝનમાં

## એલડીનો એન્યુઅલ પ્રોજેક્ટ એક્સપો 11થી 12 એપ્રિલ દરમ્યાન કેમ્પસમાં યોજાશે

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એલડીની આઈસીની ટીમ ઓટોનોમસ ડ્રોન સર્વેલન્સ લઈને આવશે તો બીજી ટીમ નવી જનરેશનના પ્રોજેક્ટ અને પ્રોટોટાઇપ મોડેલ દર્શાવશે. એલડી એન્જિનીયરીંગ કોલેજમાં 11 એપ્રિલથી બે દિવસનો એન્યુઅલ પ્રોજેક્ટ એક્સપો કાયઝન 2019 શરૂ થઈ રહ્યો છે. આ પ્રોજેક્ટ એક્સપોમાં 1800 જેટલા સ્ટુડન્ટસ 540 જેટલા પ્રોજેક્ટ રજૂ કરશે.

**આ છે ઓટોનોમસ IOT બેઝડ ડ્રોન સર્વેલન્સ**



સામાન્ય રીતે ડ્રોનને નીચે રિમોટવૌ સોફ્ટવેર કન્ટ્રોલ પાસ આપી વાલ્યુના સ્ટુડન્ટસ નિરાંત, ભારતિક, સ્થાન અને ડેવિલોપમેન્ટ ડિજિટલ સોફ્ટવેર બેઝડ આ ડ્રોન તૈયાર કર્યું છે. જેમાં જુબીએસ લોકેશન ટ્રેકિંગ સર્વિસ અને સોફ્ટવેર ડેવલપમેન્ટ કરીને પરત આવે છે.

**એક્સપો સ્ટુડન્ટસને પ્રોત્સાહન પુરુ પાડે છે**

જુબી વડોદરા, કાલિયા, એલડી એન્જિનીયરીંગ

હું માનું છું કે કાયઝન પ્રોજેક્ટ એક્સપો સ્ટુડન્ટસને પ્રોત્સાહન પુરુ પાડે છે. ઉદ્યોગની સતત વધી રહેલી માંગ અને સ્ટાન્ટઅપ અને સંલોધનના પ્રિક્સ માટે આ એક્સપો પાતાના મોડેલ સહી નવી દિશા આપી શકે છે. આ ઉદ્યોગમાં જાણીતા જ્યુરી પેનલ તરફ ઉદ્યોગપતિઓ અને શાળ્ય એક્સપર્ટસ લગત રહેશે. હું માનું છું કે એન્જિનીયરીંગ એક એવું ફિલ્ડ છે જેમાં સ્ટુડન્ટસના ઈનોવેશનને મદદ આપવું જોઈએ. કાયઝન આ હેતુ સિધ્ધ કરે છે.

**ફિલ્ડ વિતરણ**  
તા. 10 અને 11 એપ્રિલ, 2019

Coverage of First prize winner team on local news channels