Vidya Vikas Education Trust's
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Gujarati Linguistic Minority Institution
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The Benchmark

Issue 21: April 2020 Edition

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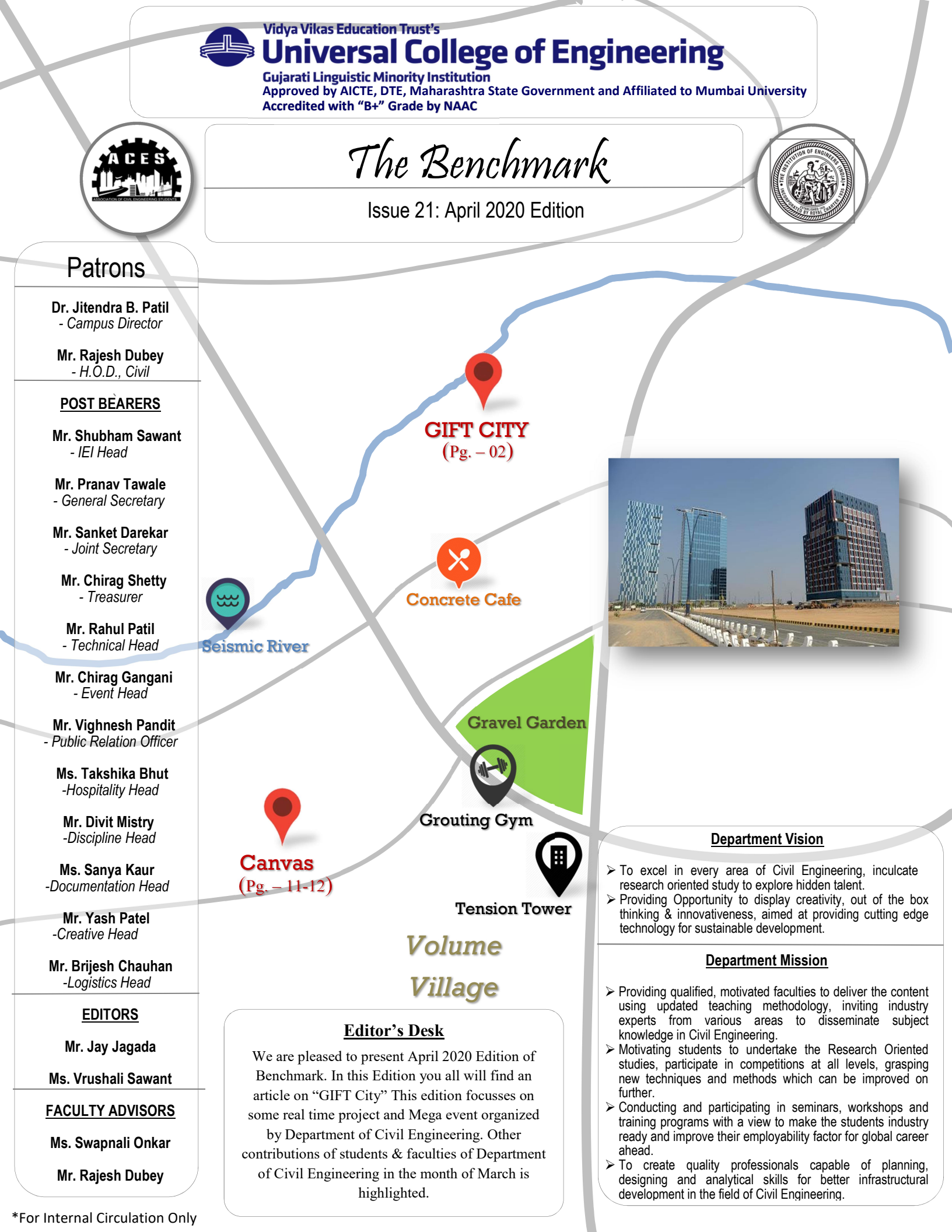


Editor's Desk

We are pleased to present April 2020 Edition of Benchmark. In this Edition you all will find an article on "GIFT City" This edition focusses on some real time project and Mega event organized by Department of Civil Engineering. Other contributions of students & faculties of Department of Civil Engineering in the month of March is highlighted.

Department Vision

- To excel in every area of Civil Engineering, inculcate research oriented study to explore hidden talent.
- Providing Opportunity to display creativity, out of the box thinking & innovativeness, aimed at providing cutting edge technology for sustainable development.

Department Mission

- Providing qualified, motivated faculties to deliver the content using updated teaching methodology, inviting industry experts from various areas to disseminate subject knowledge in Civil Engineering.
- Motivating students to undertake the Research Oriented studies, participate in competitions at all levels, grasping new techniques and methods which can be improved on further.
- Conducting and participating in seminars, workshops and training programs with a view to make the students industry ready and improve their employability factor for global career ahead.
- To create quality professionals capable of planning, designing and analytical skills for better infrastructural development in the field of Civil Engineering.

GIFT CITY

Overview

- Gujarat International Finance Tec-City (GIFT City) is a business district promoted by the Gujarat government through a joint venture company. GIFT City is India's first operational smart city and international financial services centre. The GIFT City is located on the banks of Sabarmati River and is around 12 km (7.5 mins) from Ahmedabad International Airport. GIFT is easily accessible from all directions through 4-6 lane State and National Highways. A double corridor metro system is being constructed to connect GIFT City to the nearby airport and various parts of Ahmedabad and Gandhinagar.The idea for GIFT was conceived during the Vibrant Gujarat Global Investor Summit 2007 and the initial planning was done by East China Architectural Design & Research Institute (ECADI), which is credited with planning of much of modern-day Shanghai .
- GIFT City's Master Plan is for the 359 hectares (886 acres) of land area to have approximately 110 buildings with 5,800,000 m^2 (62,000,000 sq ft) of built-up area, of which around 67% is commercial, 22% is for residential and 11% is social facilities. Currently approximately 190,000 m^2 (2,000,000 sq ft) of commercial space is operational, and another 280,000 m^2 (3,000,000 sq ft) is under development. As of now an investment of Rs 10,500 crore has already been committed for GIFT City. The city has an integrated development model which has been spread out in three phases. Each phase is designed as integrated sustainable development, for example, the first phase itself includes development of office space, residential, school, hotel, club etc.Currently approximately 225 units/companies are operational with more than 12000 professionals employed in the GIFT City.

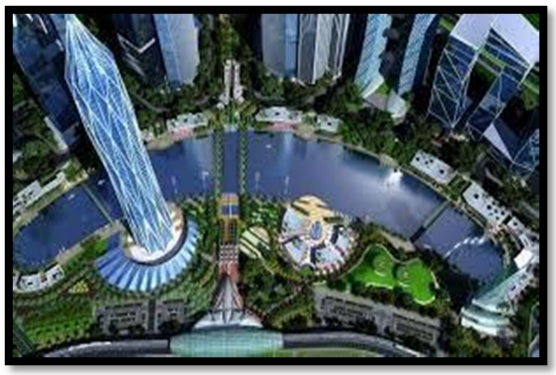
KEY FEATURES

- GIFT is an operational smart city developed in the Gandhinagar metropolitan region as a greenfield development. The project includes features like a district cooling system, underground utility tunnel, and automated vacuum waste collection. The city is designed for walk to work concept and includes commercial and residential complexes.

UNIQUE FACTS

- Gujarat's Former Chief Minister Mr. Narendra Modi had inaugurated the tallest building of the state at the Gujarat International Finance Tec-City (GIFT) while hoping it would be a new benchmark in financial services sector

Photos



The purpose of setting up the GIFT City is to develop a world class smart city that becomes a global financial hub with the development of an International Financial Services Centre (IFSC).

DID YOU KNOW?

Makkah Royal Clock Tower is the most expensive building in the government owned buildings, it is over 35 times the size of Big Ben and has four faces each measuring 46 feet

To know more about GIFT City, Scan the QR Code

Page 03:- Real Time Slope Failure Prediction System

ABSTRACT

Slope failures are most prominent in hilly regions facing heavy downpour of water. This leads to blockage of roads, loss of life and economy, etc. This can be detected prior to its commencement by using an array of sensors integrated with a microcontroller by precise programming and calibration. But implementation of such a system in the real world is extremely difficult due to unpredictable conditions. This project focuses on predicting failure of slope in a controlled environment. This reduces errors and difficulty in experimental setup. We were successful in predicting failure of the designed slope under conditions maintained with the help of Arduino and Moisture sensors. Telemetry software was used to plot data on the graph.

1.INTRODUCTION

Slope failure / mass wasting / landslides / avalanche all refer to the same engineering problem i.e. sliding of land which are triggered due to increase in moisture content : excessive rainfall, addition of excessive weight above the slope, unstable slope : digging at mid or foot of slope, surface and toe erosion, induced vibrations : earthquakes and due to man-made activity : construction activity etc. Slope failure on average costs hundreds and millions to any country for its mitigation, repair or study. Not only the economy but life also suffers due to this natural disaster.

2.METHODOLOGY

2.1.Preparation of slope:

As the soil is cohesionless, preparing suitable slope for testing is achieved by adding 7.5% water by weight of soil. This enables us to maximize the required workability. This is the approximate minimum water content required for sand to hold and stand on itself without collapsing under its own weight.

Dimensions of slope:

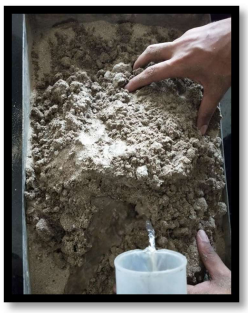
The Height of slope,

H = 22 cm

W = 16 cm

Angle of slope,

S = 75°

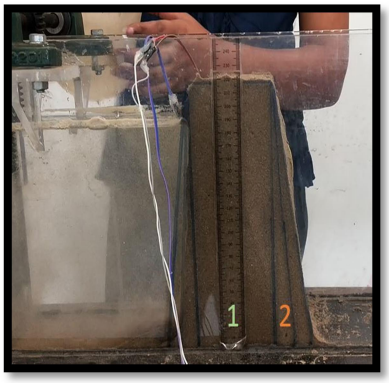


2.2.Embedding sensors in prepared slope:

Sensors are installed at locations relative to each other i.e at points 1 and 2. The locations of sensors is of prime importance since the values obtained by sensors vary drastically across the 3D model in all directions. This is observed as the properties of soil such as pore pressure, water head, moisture content and low of phreatic lines changes with location i.e. with depth and through cross-section. If the locations of sensors are not maintained while conducting test runs, the errors would be too high and acquiring data for calibration would be difficult. Each sensor is programmed according to the data obtained from previous tests. (There were a total of 8 test runs required for arriving at a stable and reliable results required for proper calibration of sensors).

2.3.Final test result with successful prediction:

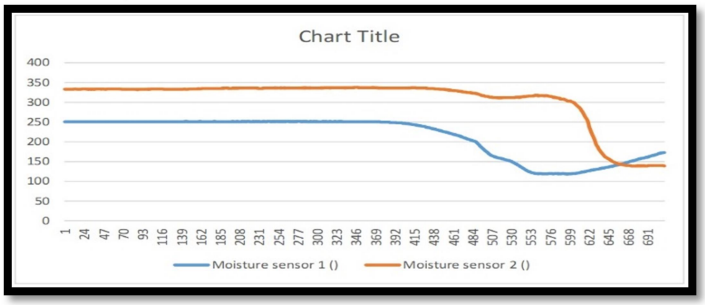
Finally after understanding and making keen improvements in the slope and sensor placement, stable results were obtained. These results can be seen in the following figure. As the tests were now reliable, another sensor was added to the slope as shown in the following figure. While previously



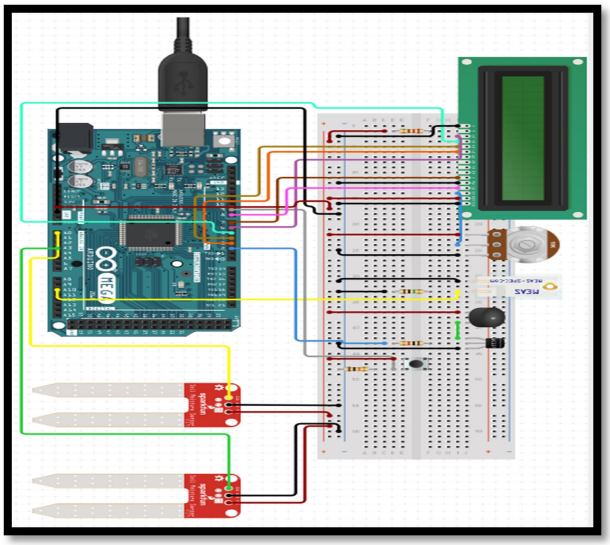
Scratch Your Head !!

1) *The fundamental units in S.I. system, are the same as that of ?*
   - ❖ *C.G.S. units*
   - ❖ *M.K.S. units*
   - ❖ *F.P.S. units*
   - ❖ *None of these*

only one sensor was utilized at the location "1" as seen in figure.

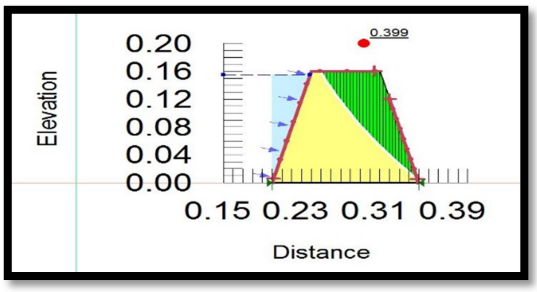


2.4.Circuiting:



3.Results

The aim of this project was to predict slope failure right before it occurs. This was done by using moisture sensors since, the most prominent factor triggering slope failure is moisture content. Thus, with numerous testing and calibration the aim was achieved successfully. This result was then cross checked with the simulation results. As seen in the following figure, and when compared to experimental failure. It can be surely said that, simulation and experimental analysis match and support each other successfully.



4.Conclusion

Even though prediction of slope failure in real life seems a very difficult task due to numerous difficulties faced. But on the basis of this project it can be said that, achieving or developing such a system which predicts slope failure before it occurs and alerting the people travelling through such zone is absolutely possible in the near future. These warnings can be seen on roads as shown in figure below.

-Mr. Yuvraj Chavda
Asst. Professor UCOE

"UPS and DOWNS in life are very important to keep us going, because a straight line even in an ECG means we are not alive." - Ratan Tata

Page 05: - JR. TANTROTSAV 2020

For the very first time in Universal College of Engineering, the Department of Civil Engineering, EXTC and ETRX in collaboration with Association Of Civil Engineering Students (ACES), The Institute of Electronics and Telecommunication Engineers (IETE) and The Institute of Engineers (IEI) organized an inter-college technical fest on 7th March, 2020 for the aspirants of various diploma colleges having a high competitive spirit and strong determination towards accomplishments. Mrs. Supriya Patil from Shri Bhagubhai Mafatlal Polytechnic, Salil Deshpande from Vartak Polytechnic and Prathmesh Patil from ARMIET Polytechnic were invited as the judges for various events to be held on the day.

Nowadays, there is a huge gap between theoretical knowledge as well as practical knowledge.

So, Junior TANTROTSAV aims to shorten this gap and expose students to various concepts of perceptivity regarding the future degree course and integrate opportunities so that they come forward and showcase their talents. This would maximize their vision in the practicality of education, something that is very important in today's dialect of the engineering community.

Students actively participated in the events and presented their work. The fest executed with a total of 15 technical events and 8 fun events planned and organized excellently in terms of quality. Focusing on the types of events to be included in Junior Tantrotsav was decided by coordinators keeping the interests of diploma students into consideration, with little emphasis on the fun events behind the scene. The General Secretary of the Association Of Civil Engineering Students Mr. Pranav Tawle, humbly express his gratitude and appreciation for the Student Council, ACES team and the faculty staff members who made this event a great success with the participant footfall ot 300+ diploma students.

The events that were highlighted consisted of the following:

CIVIL EVENTS :
URBANIA
BRIDGE IT
TECHNICAL QUIZ
TUG OF WORD'S WAR
TECH TALKS
RAPID SURVEY
CONQUER IT
SCAVENGER HUNT

EXTC & ETRX EVENTS :
MYSTERY ROOM
ROBO SOCCER
ROBO CARROM
ROBO RACE
BLIND CODING
CIRCUIT DESIGNING
QUIZ

"I don't believe in taking right decisions. I take decisions and then make them right."
- Ratan Tata

FUN EVENTS :
EGGDROP
BALLOON PYRAMID
MINUTE CHALLENGE
FOOT VOLLEY
SHORT FILM
TECHNICAL STANDUP
SELFIE MANIA
PUBG

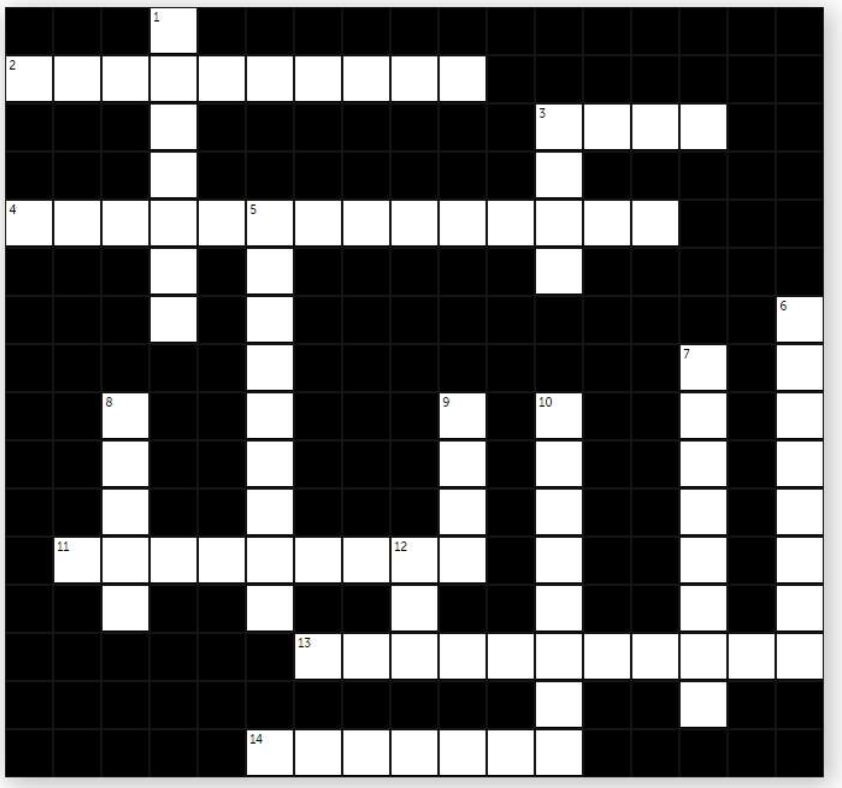
Junior TANTROTSAV 2020 was concluded with the exciting prize distribution ceremony where the achievers were rewarded with certificates and trophies under the presence of Chief Guest **Hemant Kedia and Sundeep Kedia. "**Mystery Room" event happened to be the dish of the day.
Moreover, Dr J.B Patil congratulated the participants for displaying an equally enthusiastic response in making this day a memorable one.

Scratch Your Head !!

2) The first Indian Railway was laid in?

- ***1775***
- ***1804***
- ***1825***
- ***1853***

Students of A.I.A.R Kalselar Polytechnic Civil Engineering won first and second awards at Universal College of Engineering in Jr. Tantrotsav with cash price 6500, trophy and certificate.



ACROSS

2 the act of lengthening something [10]

3 a device that moves fluid or gas by pressure or suction [4]

4 the ratio of the breaking stress of a structure to the estimated maximum stress in ordinary use [14]

11 the property of relative size or extent [9]

13 an increase in the density of something [11]

14 having little elasticity [7]

DOWN

1 the tendency of something to stay in rest or motion [7]

3 a support for two adjacent bridge spans [4]

5 lake used to store water for community use [9]

6 an alloy of iron containing so much carbon that it is brittle and so cannot be wrought but must be shaped by casting [8]

7 the center of mass of an object of uniform density [8]

8 a deformation of an object in which parallel planes shift [5]

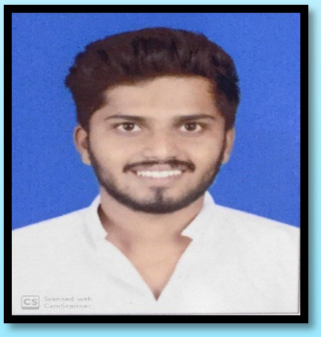
CANVAS & ACHIEVEMENTS

CONGRATULATIONS

For Their Successful Placement

Siddesh Nakashe and Sanket Kanekar in Toppr as academic consultants with 10 LPA

Mohini Kundu in Pioneer Organization, as Business Associate with 4 LPA + incentives



-Jay Jagada
S.E. Civil

-Jay Jagada
S.E. Civil

ANSWERS to "Scratch Your Head"
1) M.K.S. units 2) 1853