
Department of Instrumentation and
Control Engineering
SARANATHAN COLLEGE OF
ENGINEERING

# ICERYX

# FOREWARD

The New generation students have to spread their wings and flutter towards a glorious future by realizing the dreams of vision 2020 like a falcon with my side flight.

Think beyond your imaginations
There is no bound for creativity.

## FROM THE EDITORS DESK

Dear readers,

It's our pleasure to provide you with interesting articles every two months. From this edition, the magazine of ICERYX is getting its new form. Hope you would like to read it this way. Many new measures have been taken to bring in more fervent readers for our magazine. From the Public Relations team, we express gratitude to everyone who supported us in this endeavor. Stay tuned on to update yourself with the deeds of our department as well as the outside world. Happy reading!.

# PR TEAM

Shiva Shankar.A,2nd year

Suriya prakash.D,2nd year

Pranav kumar,2nd year

Hariharan.T,2nd year

Swetha.R,2nd year

Mahalakshmi.S.P,pre-final year

Sharvin shakesh.P,pre-final yer

Akash sami.R,pre-final year

Kirthika.V,pre-final year

Nisha fancy,pre-final year

R.Milan patel,final year

B.Irfanna ameer,final year

Surya, pre-final year

# CONTENT:

# CLAD .

Certified LabVIEW Associate Developer (CLAD) The Certified LabVIEW Associate Developer Certification indicates a broad working knowledge of the LabVIEW environment, a basic understanding of coding and documentation best practices, and the ability to read and interpret existing code.

## CONGRATULATION

29 out of 34 final year students of ICE department are cleared Certificated Associate Developer Examination (CLAD) conducted on 16.12.2019 and received an International Certification from National Instruments with validation of two years.

Here are the following students are allowed to use certified associate developer emblem in their profile

| s.no | Batch No | Name |
|---|---|---|
| 1 | 195002 | ABBAS ABDUL SALAM. S |
| 2 | 195003 | AKSHAYA. B |
| 3 | 195004 | ALAN RODDICK. S |
| 4 | 195005 | ANITHA. S |
| 5 | 195006 | ATCHAYA. G |
| 6 | 195007 | BARAKATH NISHA. A |
| 7 | 195010 | DHARSHINI. C.S |
| 8 | 195012 | DHIVYAA. R. K |
| 9 | 195014 | DIVYA PRABHA. M |
| 10 | 195015 | HARIHARAN. R.G |
| 11 | 195016 | HEMALATHA. K |
| 12 | 195019 | JAYASHREE PRIYADHARSHINI. J |
| 13 | 195022 | KIRTHIKA. G |
| 14 | 195028 | MILAN PATEL. R |
| 15 | 195029 | MOHAMED ASHIK. A |
| 16 | 195041 | SARAN KUMAR. R.S |
| 17 | 195043 | SARANYA DEVI. R |
| 18 | 195044 | SRE VIGNESH. S |
| 19 | 195046 | SUBASRI. G |
| 20 | 195047 | SUBBIAH SRINIVASAN. G |
| 21 | 195048 | SUDHERSHANAN. C |
| 22 | 195049 | SURYAPRAKASH. S |
| 23 | 195050 | TEENA. S |
| 24 | 195051 | VENU BALAN. T |
| 25 | 195052 | VIJAY. S |
| 26 | 195055 | YAAMINI. A |
| 27 | 195036 | RAVIENDREN.P K |
| 28 | 195037 | RUKMANI. N |
| 29 | 195039 | SANCHHALI. R.S |

# DETECTING THE FUTURE OF HEALTHCARE

-HARIHARAN.T, 2ND YEAR

T echnology is transforming medicine, helping healthcare professionals better identify and treat illness or disease. Sensors play a vital role in numerous devices – from x-ray imaging to thermometers – and further development to achieve new capabilities, functionalities or miniaturisation promises to unlock new heights for these components. So, where has this renewed focus come from? Filip Frederix, Head of Business Imaging at ams, credits the rise of the 'P4' approach to medicine. This is made up of four core pillars: preventative, participatory, predictive and personalised.

technology, medical and pharmaceutical companies alike are promoting this as a natural evolution of reactive disease care. “To enable these models, you need to have a lot more sensors so you can monitor your health at home when you’re not even ill. Then if you look what predictive health means, it also requires some artificial intelligence and big data analysis to make sense of certain symptoms or readings. Here you need to have very accurate sensors that can be used at home.”

Preventative health, Frederix explained, will only be cost efficient if health monitoring can be carried out without frequent interactions with healthcare professionals. If patients can monitor their blood pressure at home, for example, it becomes possible to have a system where patients only need a GP appointment if they are ill, or if it is likely they will become ill. To take this a step further, health monitoring devices must be able to identify that patients require treatment at a much earlier stage. If that possibility is realised, healthcare costs could be significantly reduced. Meeting stringent requirements Sensor manufacturers have had to invest in research and development to ensure their products are able to meet medical requirements. Luc Buydens, Product Manager, Melexis, highlighted how medical sensors must Detecting the future of healthcare have much higher level of accuracy than those used in other applications like industrial or air conditioning.

In healthcare, sensors must have an accuracy within 0.1 or 0.2°C, compared to other applications where accuracy within 1°C is sufficient. Buydens added that health sensors do have one benefit. To meet automotive or industrial requirements, sensors often need to be able to tolerate extreme temperatures – whether that’s as low as -40°C or as high as 250°C. Medical sensors do not need to reach those extremes, after all a reading of 250°C would indicate “much bigger problems”! Various sensors can be used to monitor health, but certain types are being used much more widely. According to Frederix, optical sensors have been used in various medical applications due to their sensitivity and high accuracy.


Advances are opening up the possibility of lab-based quality in a point of care setting. More specifically, infrared optical sensors are widely used to measure heart rate and blood oxygen levels. Joining the dots Medical technology developments are triggering a new era for consumer health products, and wearables is one area where innovation has flowed in that direction.

Frederix explained that these are no longer used only by sports people and techies. “Wearables now also try to give you a bit more medical data, with the possibility to connect to a healthcare professional or even to a medical company. There are even smart insulin pens that give patients feedback on how well the injections have been administered. metamorworks /stock.adobe.com The growth of smart systems like this 30 10 December 2019 www.newelectronics.co.uk will help drive accurate, integrated and cost-effective sensors.

A close interconnection between the healthcare and wearables markets will be beneficial to both sides. Overlapping development priorities could be explored through joint research projects. Manufacturing fit-for-purpose sensor components has been critical in unlocking a lot of these possibilities. Vinau explained how ams updated certain production processes to ensure its sensor components were fit for medical applications.

The company calibrates every individual sensor during its production flow, as well as considering the effects o the soldering the sensor into a PCB. He said, "The soldering process into a semiconductor device, especially into a WLCSP (wafer level chip scale package), affects the performance of the sensor. We have to ensure that, after soldering into a PCB, the accuracy is still within the required quality standards." Fitting sensors into new applications is also pushing sensor manufacturers to develop sensors that are cheaper and smaller than ever before, but the pressures are not only from a technical perspective. Frederix added that there are also business pressures at play. He said, "There are also infrastructural challenges that need to be overcome to build a healthcare system that allows patients to submit readings and then access treatments at home. That could mean medicines being delivered at home or in a pharmacy, for example, instead of always needing to visit a GP.

There are technical challenges, but we also need a system that enables these things." Jose Vinau, Director of Engineering at ams, also explained that, as a semiconductor company, building the electronics below the sensor is the easy part given ams has been doing exactly that for almost 40 years. The challenge comes from "how to integrate [the sensor] into our wafer manufacturing process". The company has found it need to "identify the sensing material – which could be chemical or a MEMS process, for example – and then integrate that into our packing process into our wafer manufacturing". He added this also poses challenges in terms of production testing. Existing integrated circuit undergo a test that involves charge, for example, so that process is one that is very familiar to ams. What is new with sensors used for medical applications, is the need for more tailored testing during production that can guarantee the quality. The company has already met this challenge for existing sensors, and Vinau explains that this push to improve production testing is an issue across the market. Clinical trials Frederix also highlighted a related challenge that comes further down the development timeline. Sensors intended for use within medical devices face further assessment before they are certified for such applications. He said the sensor "also needs to be validated in a clinical environment. If you look to our blood pressure, optical and heart rate monitoring modules, we had to [conduct] a clinical trial to prove the accuracy". That requirement to guarantee accuracy is echoed by Melexis' Buydens. He said, "Authenticity and traceability is getting more and more important. Certain applications also require sensors that can be sterilised or are biocompatible." He explained that he means biocompatible in the sense that if the sensor needs to be worn on the skin, it should not be made from hypoallergenic materials. One example is a new device that checks blood glucose levels in patients with diabetes where a probe is inserted underneath the skin that regularly monitors blood glucose levels. In that application, biocompatibility is fundamental to its functionalities. Development in these areas is what will help sensor manufacturers and their partners achieve the promise of healthcare that meets those four key pillars highlighted earlier. Healthcare that is preventative, participatory, predictive and personalised rests on developing costeffective sensors that can play a vital role in treating

# Report on my Internship at Sudharshan Auto Engineering, Pune

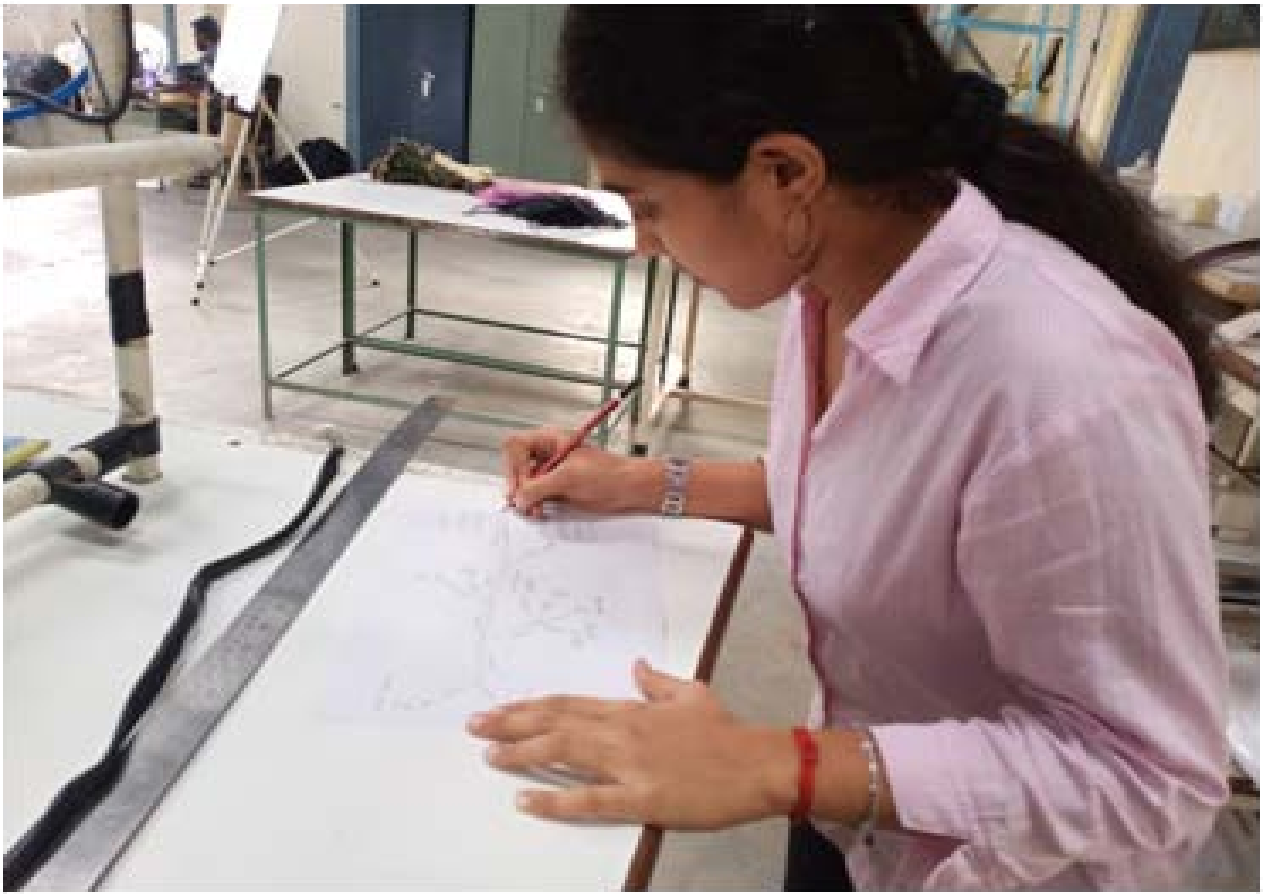
Mahalakshmi.S.P, Pre Final Year .

It was a 10 day internship at the plant from 3 DECEMBER 2019 TO 13 DECEMBER 2019 at SUDHARSHAN AUTO ENGINEERING, CHAKAN, PUNE. The company is an OEM, a wiring harness unit which procures various raw materials, assemble in according to the customer specifications and dispatch it. Their raw materials include connectors, terminals and cables. The final products are automotive and non automotive cables like fuel meter cables, speedometer cables, cables for dashboard etc. Their customers include Bajaj, Pricol ltd, etc. I was given an opportunity to witness overall plant activity for two days. I got enlightened on the operations of wiring harness and its various processes like cutting, crimping, locking, sleeve insertion, continuity testing and quality assurance. I was then appointed in the design team and learnt how the basic drawings were made.

These drawings are the first and foremost process before any wire harnessing. They are the basic blueprint about how the cable has to be harnessed and what are the terminals to be connected. They have different symbols and colors to indicate the components. Another major operation in this company is sleeve manufacturing. The raw material for this process is PVC granules. The granules are pre heated to alter the physical properties and fed into the machine. It is heated above its melting point and passed through the applicator. The overall machine operation is controlled by PLC and relay logics. There are various dyes for applicator and it decides the diameter of the sleeve to be produced.

The sleeve is cooled by immersing in the cold water as soon as it emerges from the applicator. This temperature transition hardens the material making it suitable for various strains. There are various colors for dye like black, blue, red, green etc. The final sleeve is rolled and ready for dispatch. It was a highly useful industrial exposure for me.

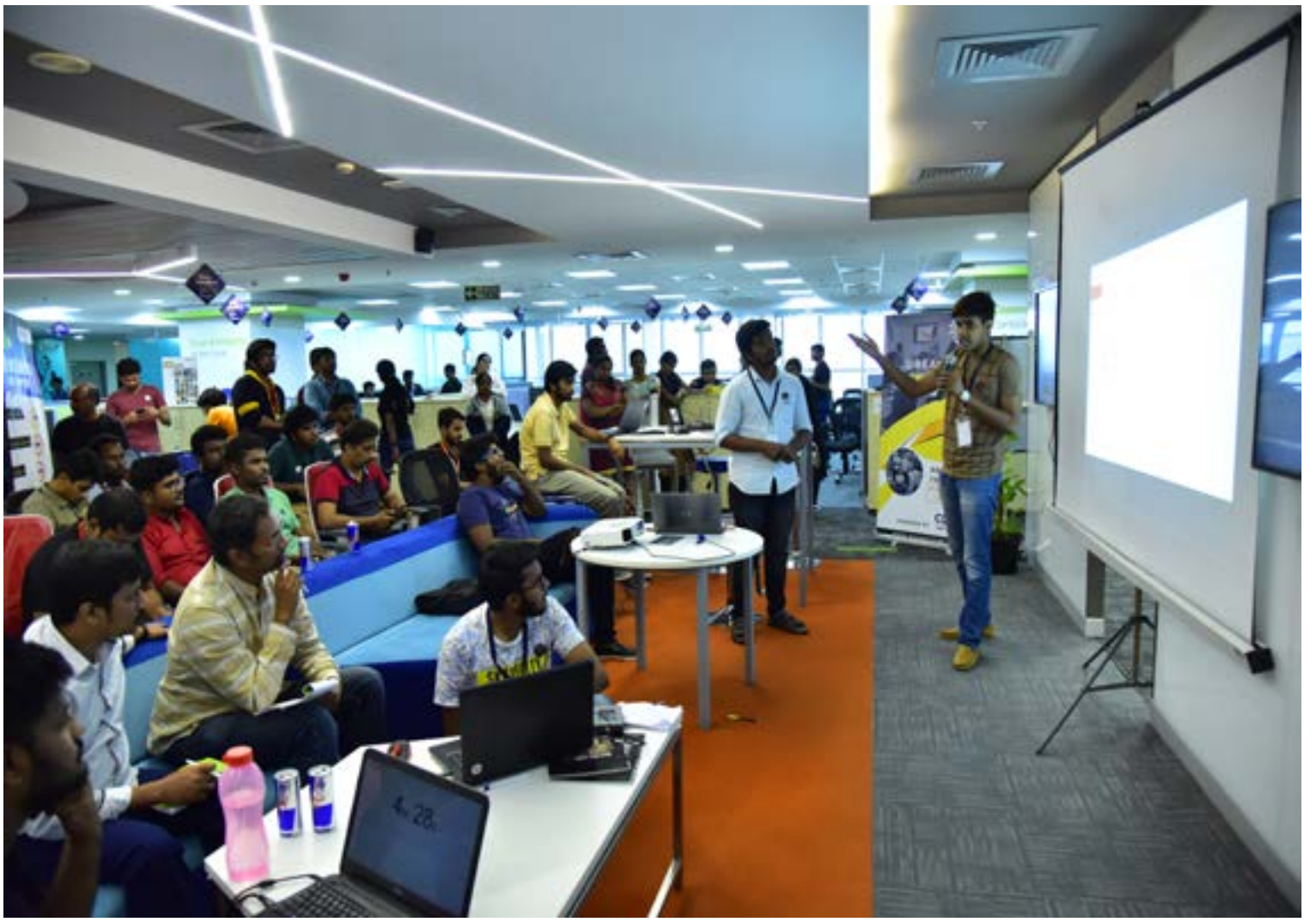

QUA
Is a Meas
of Succes



# IFA hackathon 2019.

## Participated by

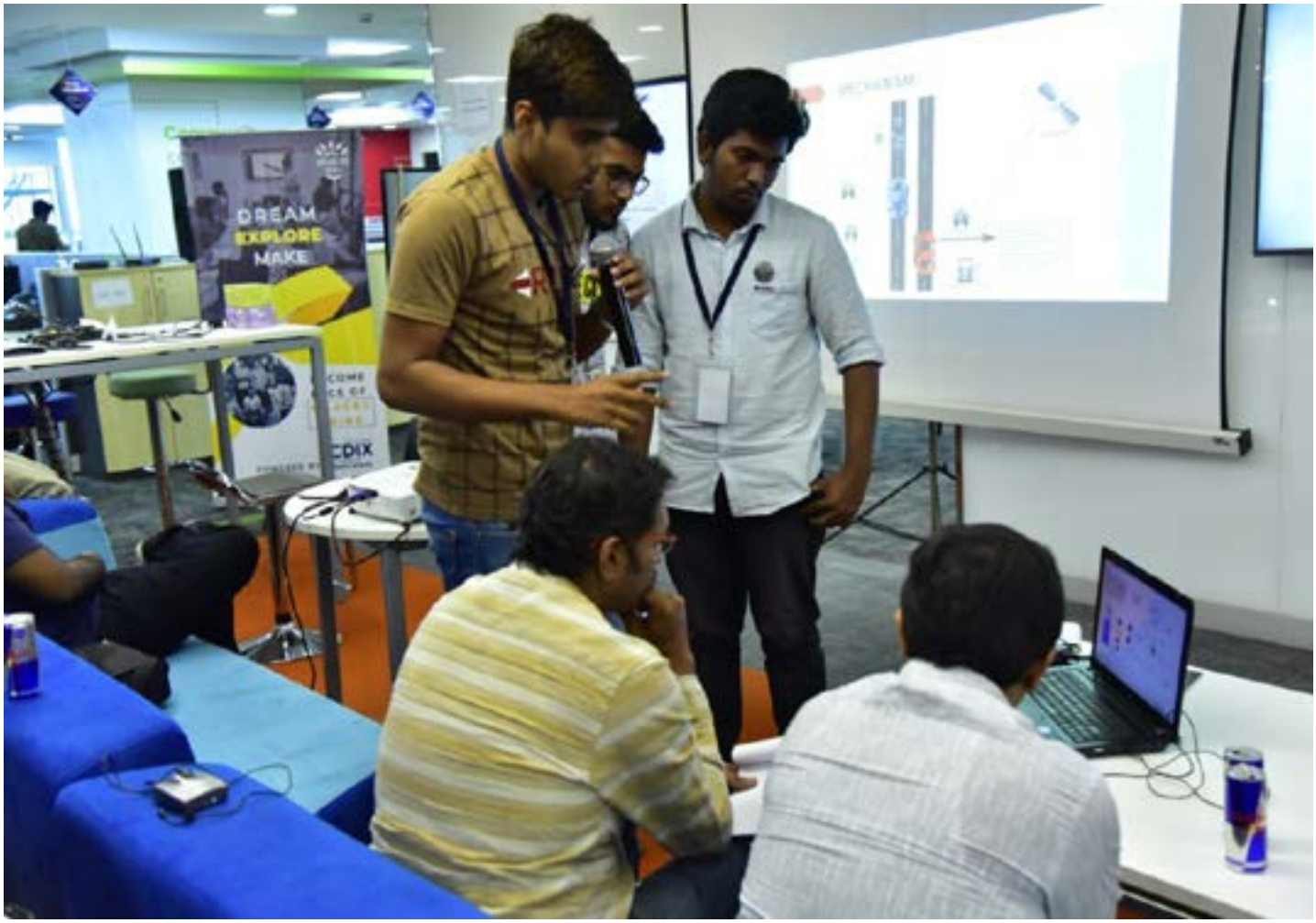
Ahamed Zuhoor.AG. ,
Akash sami,
Tharik ahmadu,
Mohammad deen)



IFA hackathon 2019 is an open hackathon conducted by makers tribe in collaboration with Altimetrik  at Ascendas IT park,Chennai on December 7&8 .
It's a 36 hour hackathon in which Mr.Ahamed Zuhoor,Mr. Tharik Ahmadhu Mohammad Dheen , Mr.Akash Sami participated and went on till final round and came up with innovative solution software for Electronic Vehicles .
The event saw total 200 participants who were selected all across India after screening test .

Themes: Disaster Management Women Safety Peer To Peer Transaction Community Building Smart MobilitySmart City Sustainable EducationSocial Cause Technologies:Artificial Intelligence Internet of Things (IoT)AR/VR/XR Blockchain Game Development App DevelopmentRobotic Process Automation (RPA)

Our team did on smart mobility.




STUDENT'S CORNER

1.Ahamed Zuhoor.AG completed his 1 week inplant training at TNEB.

2. Ahamed Zuhoor.AG has won 1st prize in innovate event in NIT-Trichy.

DID YOU KNOW?

-Pranav kumar.S, 2nd year.

1. Banana is actually an arabic word for fingers.

2. When you snap your fingers your finger moves at about 32 km\hr.

3. The QR code was 1st invented in 1994 by the japaneese company Denso wave.

4. Bears cannot urinate while hibernate . Their bodies turns the urine into protein and use it as food.

5. “TERMINATOR” -The line which separates the day and night on earth.

6. If earth stops rotating suddenly then you would fly east at 465 meters per second and die instantly.

7. Facebook is blue because Mark Zucker berg is Red-Greencolor-blind and blue is the richest color he sees.

8. A mountain goat called the ibex can climb the slant surface .

9. Only 2% of humans beings have green eyes , making it the rarest eye colour.

10. Engineers at the University of Washington have developed a phone that can make and receive calls with no battery.

# APTI PREPZ

-PRANAV KUMAR,2ND YEAR

1) What is the average of first five multiples of 12?

1. 36
2. 38
3. 40
4. 42

2) What is the difference in the place value of 5 in the numeral 754853?

A. 49500
B. 49950
C. 45000
D. 49940

3) How many times the hands of a clock coincide in a day?

A. 24
B. 22
C. 23
D. 21

4) 40 % of 280 =?

A. 112
B. 116
C. 115
D. 120

5) What is the HCF of 1095 and 1168?

A. 37
B. 73
C. 43
D. 83

6) If 30% of a certain number is 12.6, what is the number?

A. 24
B. 42
C. 23
D. 32

7) Complete the series 2, 5, 9, 19, 37.....

A. 76
B. 74
C. 75
D. None of these.

8.Today it is Thursday.After 132 days,it will be

A.Monday
B.Sunday
C.Wednesday
D.Thursday

9.Ramesh ranks 13th in the class of 33 students. There are 5 students below Suresh rankwise. How many students are there between Ramesh and Suresh ?

A.12
B.14
C.15
D.16

10.Rearrange the first four letters, in any way, of the word DECISION. Find how many words can be formed by using all the four words.

A.one
B.two
C.three
D.none

# SPORTS

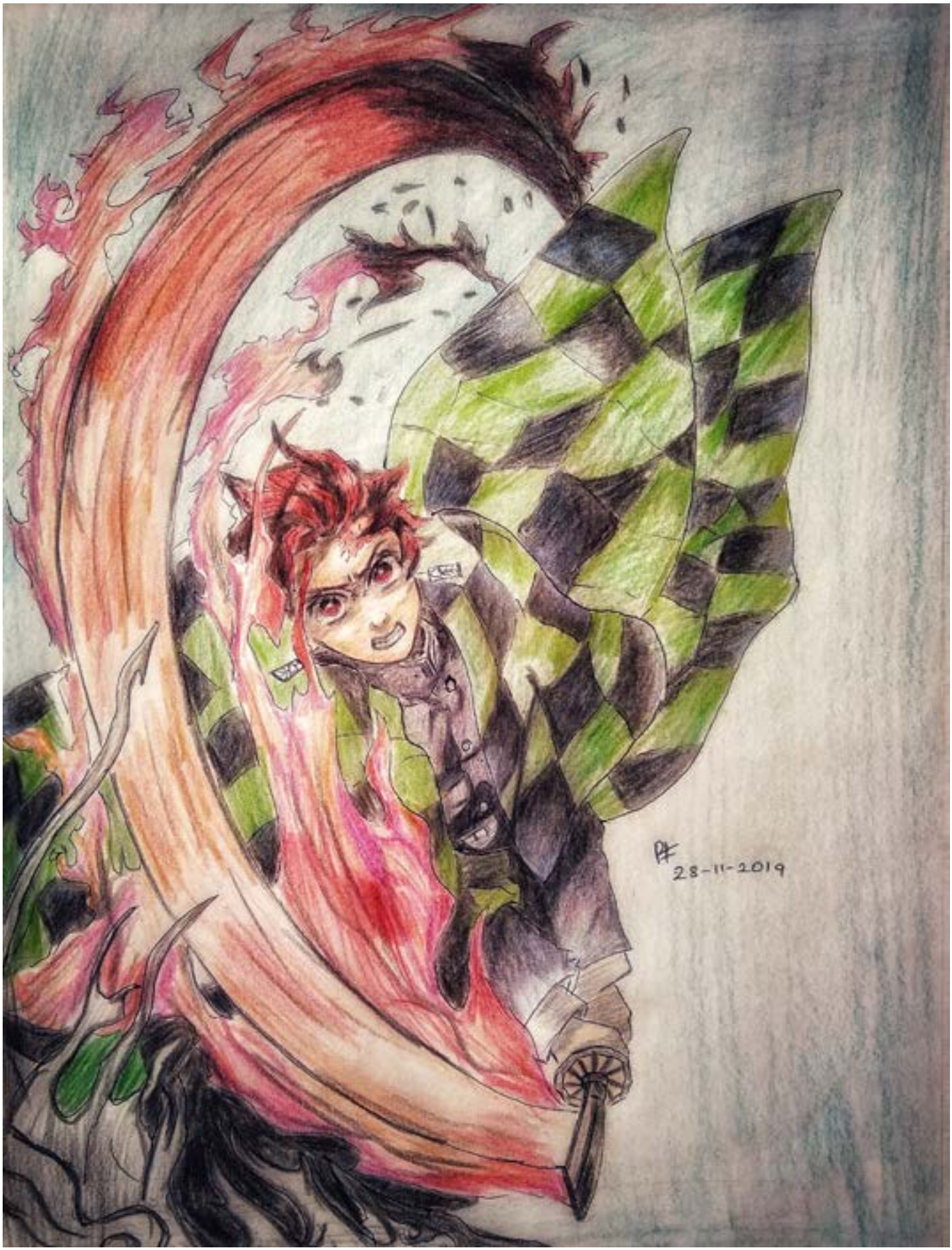
At JJ college our department students
Benito
Senthil
Darsan
Hari
Harish
Javeed
Abbas
Naina
Krishna

Went for 2 days test match,
Cauvery team(opponent), 308score,

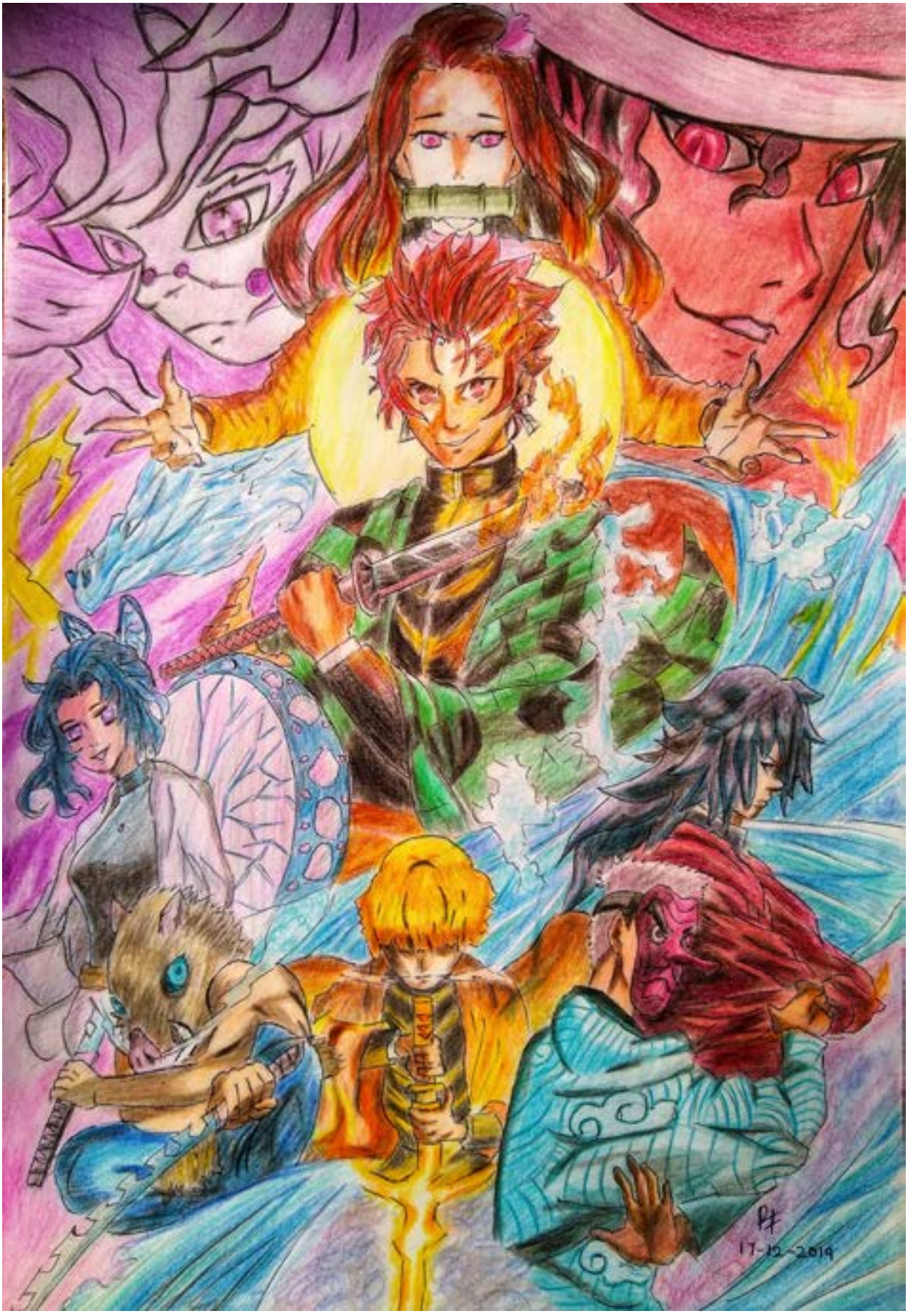
Our team members scores and no.of wickets taken are
Benito 44 runs, Darsan 28 runs and 3wikts, Senthil 27 runs and 5 wkts, Hari 27 runs 2wkts, Abbas27 runs 2 wkts, Krishna 20 runs 2 wkts,naina 18 run's, Javeed 1wkts.

At JJ college on 6th september our department students won 3 rd price in Hockey.

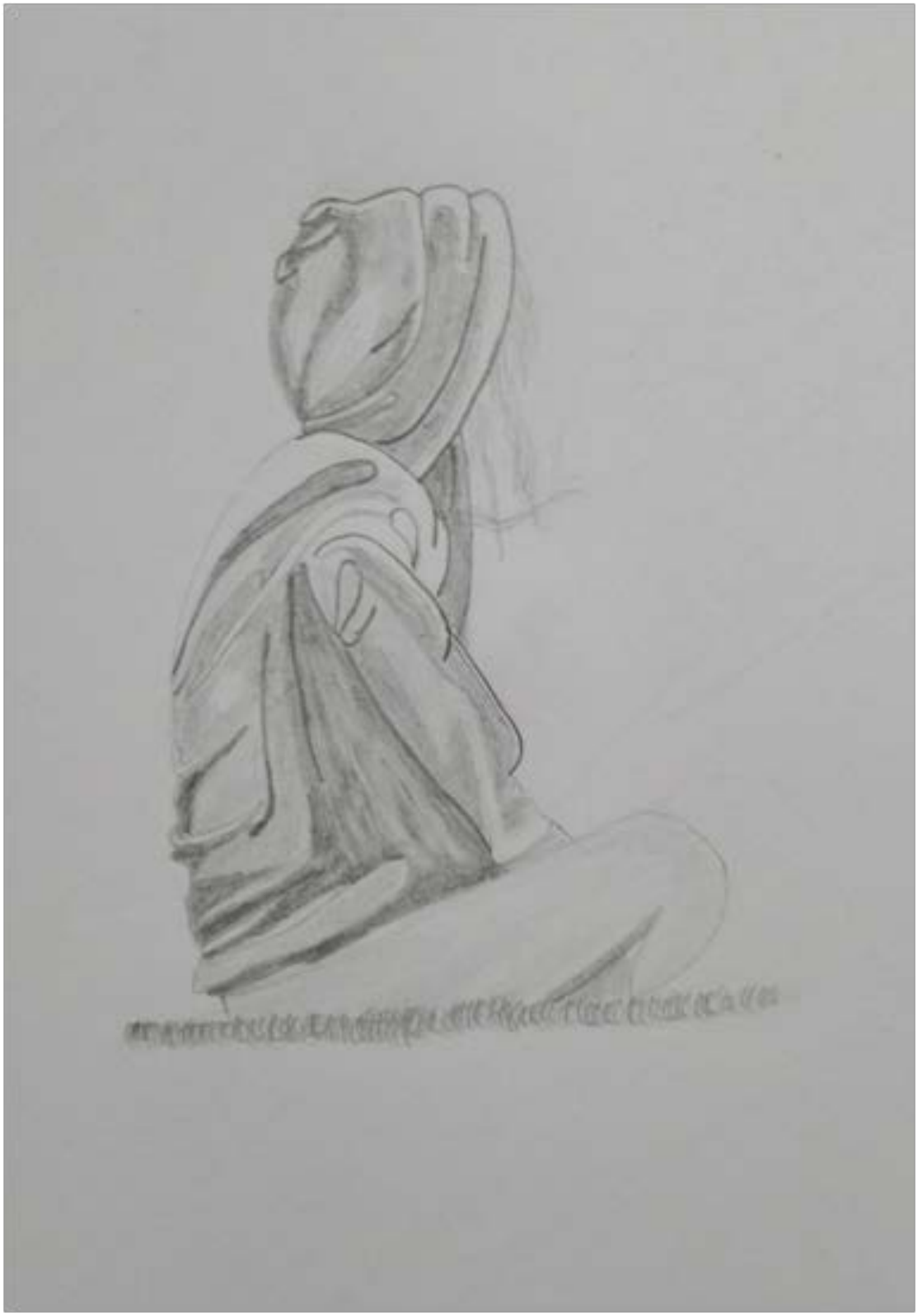
# ART AND PHOTOGRAPHY




HARIHARAN.R.G ,Year: IV,Dept: ICE




HARIHARAN.R.G , Year: IV ,Dept: ICE



-R.swetha,2nd year, ICE

# PHOTOGRAPHY

FREEZED BY

-SURIYA PRAKASH.S.P,2nd year, ICE