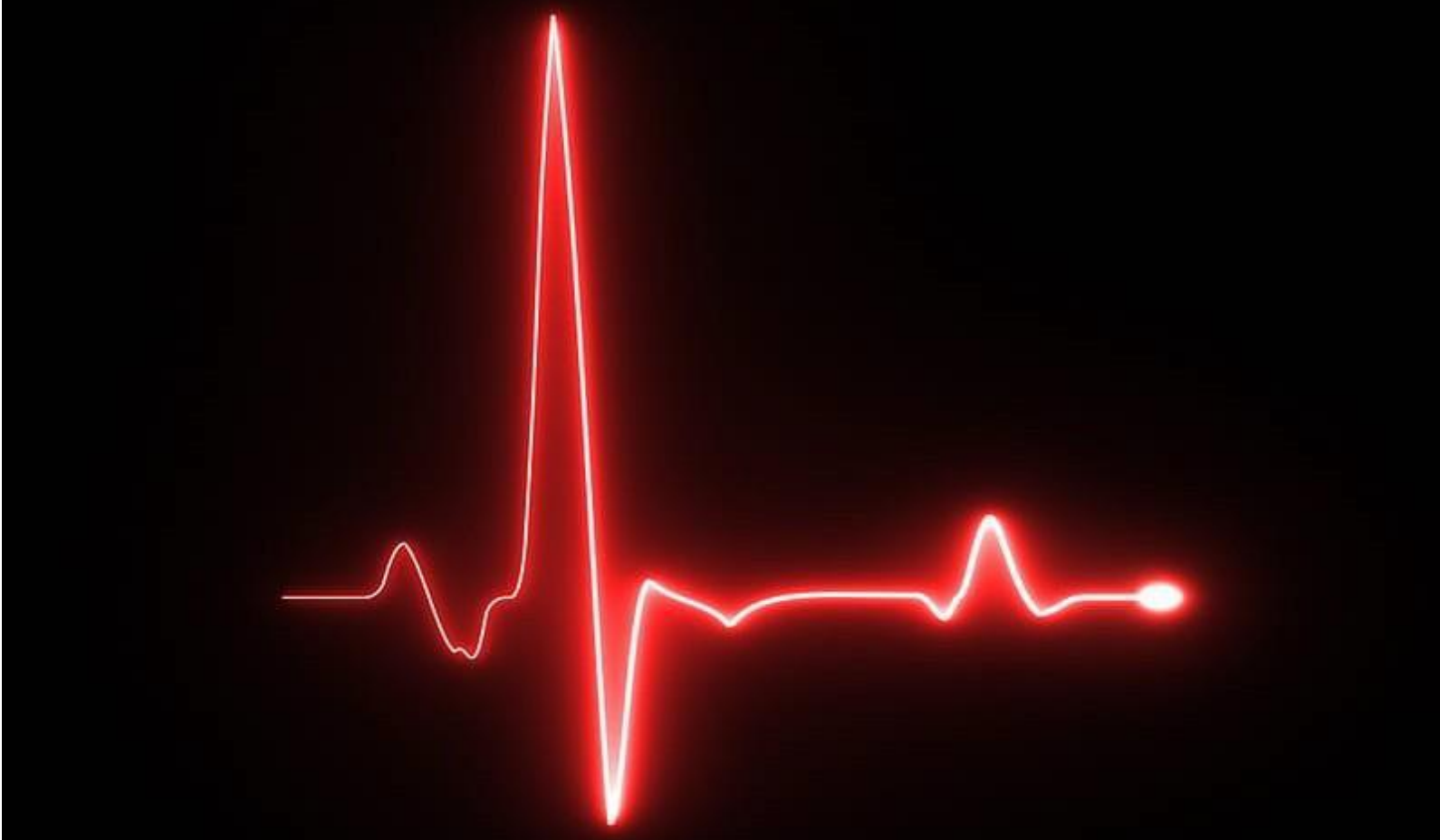
DECEMBER 2021 | VOL 1 | ISSUE 6

CHRIST
(DEEMED TO BE UNIVERSITY)
BANGALORE · INDIA

THE PULSE

NEWSLETTER
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING



Vision

To emerge as a centre of academic excellence in the field of Electronics & Communication Engineering to address the dynamic needs of the industry upholding moral values.

Mission

- Impart in-depth knowledge in Electronics & Communication Engineering to achieve academic excellence.
- Develop an environment of research to meet the demands of evolving technology.
- Inculcate ethical values to promote team work and leadership qualities befitting societal requirements.
- Provide adaptability skills for sustaining in the dynamic environment.

MESSAGE FROM FACULTY

POSITIVENESS

DOUBT AND FAITH ARE THE STATUS OF MIND.

DOUBT CREATES THE DARKEST MOMENTS IN FINEST HOUR.

WHILE FAITH CREATES THE FINEST MOMENTS IN DARKEST HOUR.

RIGHT ATTITUDE NEVER TAKES YOU TO WRONG DIRECTION.

WRONG ATTITUDE NEVER TAKES YOU TO RIGHT DIRECTION.

LITTLE PROGRESS EACH DAY ADDS UP TO BIG RESULTS.

FAITH, RIGHT ATTITUDE, CONTINUOUS PROGRESS ARE THE LIGHTS OF POSITIVENESS CANDLE.

Dr. Aswathakumara M (ECE Dept.)

EVENTS

Highlights of the Month:

- Christmas 2021 was celebrated with festive fervour in departmental level, held on 20.12.2021.
- Prof.Shashikumar.D participated in "FDP on 5G Antenna Design Engineering" organized by Mailam Engineering College, held on 06.12.2021.
- Dr.S.Suganthi participated in "Technical Talk-Event 3 on Unleashing the Power of Deep Learning for all Research Domains" organized by Christ(Deemed to be University), held on 11.12.2021.
- Prof.Shashikumar.D participated in "IEEE Authorship Workshop: Tips and Tricks on Writing Research Articles for Journals" organized by Christ(Deemed to be University), held on 18.12.2021.
- Dr.Harimurthy published an article entitled as "Nickel-Based Inks for Flexible Electronics – A Review on Recent Trends" in Journal of Advanced Manufacturing Systems, Dec 2021.
- Dr.Aneesh.V presented a paper entitled as "A review of Optimization Algorithms used in Proportional Integral Controllers (PID) for Automatic Voltage Regulators" at ICTSGCS 2021, Yamagata University, Japan, Dec 2021.
- Dr.Harimurthy and Dr.Vinay Jha Pillai presented a paper entitled as "Application of Block Chain Technology to prevent Food Losses" at ICTSGCS 2021, Yamagata University, Japan, Dec 2021.
- Dr.S.Sujatha has been appointed as Reviewer for ICMNWC-2021 conference, Dec 2021.
- Dr.Harimurthy received a grant of Rs. 92,000 under Seed Funding Scheme for Research by Centre for Research, Christ University.

STUDENT CONNECT

FIELD TESTING OF ANTENNAS BRO!!

What did I do ?
I helped the RF and Microwave Research Laboratory of our department prototype a basic range testing setup for 2.4GHz
antennas using two NRF24L01 wireless transceiver modules and two Arduino Unos with a piezo buzzer as a crude range indicator.

Why ?
Antennas are meant as a solution for wireless communication. An important requirement in wireless communication is range, hence it's crucial for designers to verify if their antennas actually meet the design goals. Our RF and Microwave Lab designs and fabricates many antennas operating in the 2.4GHz spectrum, a setup to quickly couple and decouple antenna prototypes to the receiver and transmitter modules ,verify communication and get a rough idea of range through corridors and walls was needed. So we made one.

The Setup.
Two almost identical Arduino - nRF24l01 units are flashed with the transmitter and receiver firmware that was written and a piezo buzzer on the receiver side makes periodic beeps to indicate uncorrupted reception of message strings. The modules can be mated with custom antennas and the same firmware can test if the antenna's working in the desired window.
An antenna fabricated in the lab Different combinations of antennas can be tested with each other or the same reference antenna with a person holding the receiver module walking around or out of the room to test range.

Video of the working setup - https://youtu.be/CDf02kDGMRM

The modules were connected to the Arduino Unos using the SPI protocol (Serial Peripheral Interface) with the following pins on the boards involved.

GitHub - virgin robotics/nrF24l01-Arduino-test-setup: Basic TX - RX setup to test communication between two 2.4Ghz antennas. (github.com)

A great opportunity!
The RF and Microwave research lab is a highly sought after resource in Bangalore and neighboring areas for antenna testing in anechoic chambers , proven by the high revenue generated by the lab through third parties coming to test their RF and microwave technology. A facility of it's magnitude in our campus is a great opportunity for students wanting to develop their own antennas, RF circuits, fabricate and test it in our own facility to develop a strong base to launch a career in RF and Microwave. Interested students are encouraged to visit the facility when possible or may contact Asst Prof Shashikumar D (99169 47645) for more details on what they can do.

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STUDENT CONNECT

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Kindly share your thoughts and research experiences via e-mail to our team, and be featured in next month's issue!