



Electronica 22 of Electronics & Telecommunication Department

Date; 15/08/21

Vision

- To serve basic needs of rural society by imparting technical education training to electronics and communication engineering students.



Mission

- M1- To provide excellent teaching and lifelong learning environment.
- M2- to contribute in the ethical, social and economic development of society by imparting updated technical education.
- M3- to develop institute industry interaction to produce competent professionals and promising entrepreneurs in the field of electronics and telecommunication

HOD Desk



THE ELECTRONICS AND TELECOMMUNICATION DEPARTMENT NEWSLETTER IS A PLATFORM FOR SHARING EDUCATIONAL INFORMATION, ACTIVITIES AND RELATED EVENTS. I HOPE THAT THE NEWSLETTER WILL PROVIDE USEFUL AND RELEVANT INFORMATION. IT IS THE INTENT OF THE DEPARTMENT TO MAKE IT SEMI-ANNUAL PUBLICATION TO KEEP IN TOUCH WITH THE DEPARTMENTAL ACTIVITIES AND ACHIEVEMENTS.



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Departmental Laboratories Department is having well equipped laboratories to have hands on practices of students.



Student Performance

**1.PATIL MANSI
LAXMAN=75.88**

**2.RASURE POOJA
DHONDIRAM=74.33**

**3.INGALE SANDHYA
SHVAJI=73.55**

Student Activities

1.Tree Plantation





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Student Activities **2. Women's Day**



4. Swacchata Abhiyan



3. COVID Vaccination



5. Health Drive

5. Yoga Day





Technical Articles

1. Supercapacitors to make IoT nodes immune to brownouts

By: Suraj Ghodke



When Internet of Things (IoT) or Industrial IoT (IIoT) networks are placed on the same main power grid used by residential electricity customers they are subject to power fluctuations, brownouts, or even a full loss of electric power for tens of seconds. Stateless nodes can resume operation on power-up; however, nodes that must maintain state over time will be reset on power-up, which can result in malfunctions, delays, or lost performance of the network.

Battery solutions are one way to avoid resets, but they have a limited lifespan and are generally more expensive over the lifespan of the device. Instead, supercapacitors—passive electrical components with storage of 1 farad (F) or higher—can be used. These devices eliminate the impedance of ensuring IoT need not shut down from over-voltage or undervoltage events. They are also more rugged than batteries and can be used in a wide range of applications, from high-temperature industrial environments to power-uptime-critical applications.

example devices, one such from AVX Corporation and Hirose Corporation.

The problem with putting IoT nodes on residential power mains Industrial facilities that run control processes often have backup power generators in case of a temporary power failure from the electric company. Redundancies and multiple generators ensure that power is consistently maintained, even in extreme cases of extended power outages. The

distributed power from the main power grid is not as continuous as that of electric power, which may also provide some redundancy from power outages in the rest of the grid. Many small or non-critical IoT nodes are powered off of the same residential power grid used by homes in the area without any expensive backup power systems. Depending on the design of the network, a temporary or intermittent loss of power can reset systems, shut down operations, and result in loss of data and performance. There are several options to prevent this loss of data.

2. Wi-Fi 6

By: Aditya Pandit



What is Wi-Fi 6?

The timing could not be better for the latest generation of Wi-Fi, branded as "Wi-Fi 6," to come to market. Wi-Fi 6 devices use a more efficient means of communicating, allowing multiple devices to simultaneously communicate with the home access point. Wi-Fi 6 will make existing broadband connections feel faster since the devices in the home will not have to wait in line to take their turn, as was the case with previous generations of Wi-Fi. Wi-Fi 6 is currently shipping in volume in phones, PCs, and access points.

Wi-Fi has never been more important than it was in 2020, with distant streaming and working connections, bogged down by wait-up video conferencing. Compared to previous years of simply streaming large amounts of video downloaded data, video conferencing exposed the importance of uplink data traffic. Both use the same broadband service as well as the multiple, competing Wi-Fi devices

If your current Wi-Fi connection isn't strong enough to support your growing number of devices, you might be on the lookout for a better solution. Perhaps you're experiencing frequent connection errors, slowdowns, and other technical difficulties. Wi-Fi 6 can offer a faster, more reliable connection. We'll talk more about this next-generation standard in Wi-Fi technology, tell you what it has to offer, and give tips on determining what devices are compatible with Wi-Fi 6.

The dawn of generational Wi-Fi labels

The Wi-Fi Alliance is the organization in charge of deciding, developing, and designing Wi-Fi standards. As devices become more complex and internet connections evolve, the process of defining wireless connections also changes. That means that Wi-Fi standards—the technical specifications that manufacturers use to create Wi-Fi—



Technical Articles

3. Designing ASICs for future Healthcare

By: Vaishnavi Jadhav



The agriculture industry has radically transformed over the past 20 years. Advances in machinery have expanded the scope, speed, and productivity of farm operations, leading to more efficient cultivation of more land. Seed, irrigation, and fertilizer use have vastly improved, helping farmers increase yields. Many countries in the early days of agriculture used tools and equipment, including windmills, windmills, windmills, and other emerging technologies, would further increase yields, improve the efficiency of work, and other inputs, and build sustainability.

and resilience across crop cultivation and animal husbandry. The COVID-19 crisis has further increased other challenges. Agriculture faces its own unique challenges, including the need for farmers to sustain crop yields. Globalized global supply chains have highlighted the importance of having more local production, which could increase the resilience of smaller farms. In the global pandemic, many nations are moving to local production, which could increase the resilience of smaller farms. In the global pandemic, many nations are moving to local production, which could increase the resilience of smaller farms.

benefits from decreased travel and consumption during the crisis are likely to drive a change in more local, sustainable farming, requiring producers to adjust long-standing practices. In short, the crisis has demonstrated the necessity of more widespread digitization and automation, while suddenly shifting demand and sales channels have undermined the value of agribusiness.

Sensors job in agriculture

In recent years, many farmers have begun to use smart data about essential variables like soil, crops, weather, and weather.

4. Electronic smart locks

By: Vaibhav Kawade

Electronic smart locks

Electronic smart locks are another critical system in building security. The electronic smart lock is designed to work even in power outage situations. The lock can accept either a code, an ID tag, or a remote signal to unlock. It provides sound and light feedback to enhance the user experience. The built-in temperature sensor is used to identify potential fires on the other side of the door and send out warnings to the surrounding people. The smart lock is powered by a

regulators helps reduce the overall cost and prolong the battery life as the switching regulators have higher efficiency. Two Aimtec switching regulators are used in the example. One converts the 9V battery power to 5V for wireless communication and user feedback. The other converts the 9V to 3.3V for the MCU and NFC reader. The latch motor remains the most power-hungry device hence is powered directly by the 9V battery.

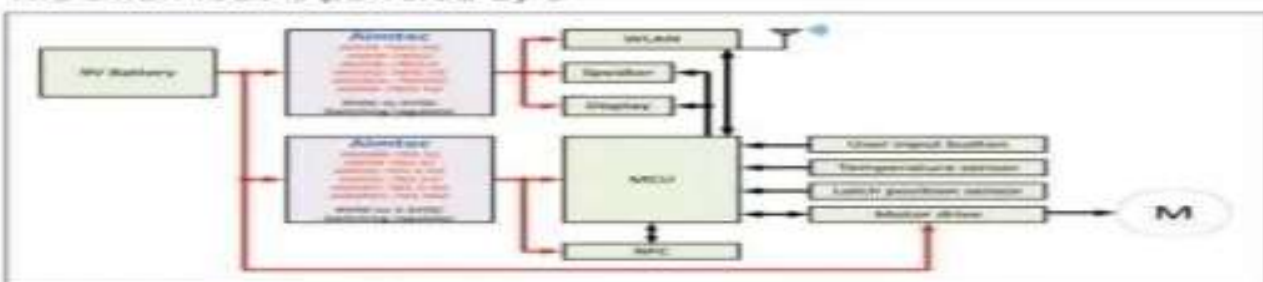


Figure 8. Electronic smart lock