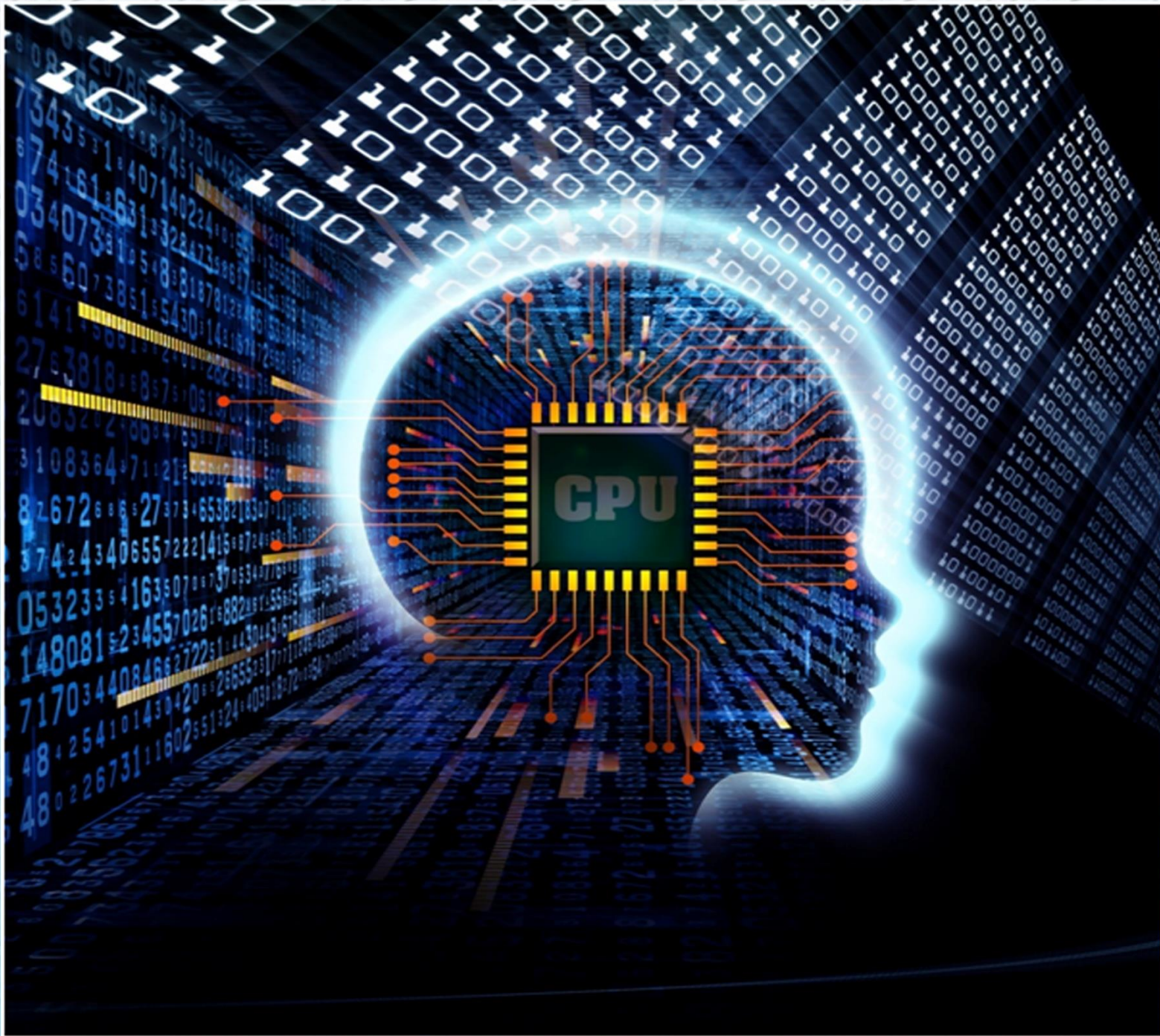


DEPARTMENT OF
COMPUTER SCIENCE ENGINEERING



TECH PULSE

2016-17

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Vision:

To emerge as a center of technical expertise in the field of computer science and engineering by producing globally competent professionals with technical & research capabilities, ethical values and team spirit.

Mission:

- M1.** To produce qualified and competent software professionals.
- M2.** To induce application oriented and research capabilities in students for the betterment of society.
- M3.** To inculcate ethics and human values in students so as to adapt to the dynamism in the field of computing technology.

Program Educational Objectives: **PEO-1**

To provide students with a strong foundation in the mathematical,

scientific and engineering fundamentals necessary to formulate, solve and analyze engineering problems.

 PEO-2

To develop an ability to analyze, design and develop novel engineering solutions.

 PEO-3

To make the students responsible with ethics, best practices, values and social concerns to meet requirements of responsible team player in the society.

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Message From Head Of The Department

Dr. N. Leelavathi
Professor & Head of the Department



The department offers B-Tech (CSE) and M-Tech(CSE). The department has a team of highly experienced and motivated faculty members who are in process of tuning the young minds to make them globally competitive. The strength of the department is highly motivated students who understand the dynamics of the industry and upgrade their skills accordingly. The scope of computer science is endless. The students of the computer science and engineering are highly demanded by the recruiters of the top companies. Depending upon the interest of the student, he/she may choose to go for higher studies or if employed can choose to do research, development, design, production, application, testing or management in the Information Technology industry. In our department we not only give emphasis on study but also apply our knowledge in understanding what computers are, what is its architecture, how to efficiently program them, different tools to write an effective algorithm, the interface between the computer and the user, the computer graphics, computer networking, managing the software database, software engineering and testing them efficiently and more. Through innovative teaching-learning process a teamwork approach and leadership building experience, our students gain vital communication and critical-thinking skills. Our institution provides a platform for the students to enhance their employability skills through Industry Institute Collaboration.”

Robotic applications in medical science

1. Telepresence Physicians use robots to help them examine and treat patients in rural or remote locations, giving them a “telepresence” in the room. “Specialists can be on call, via the robot, to answer questions and guide therapy from remote locations,” writes Dr. **Bernadette Keefe, a Chapel Hill, NC-based** healthcare and medicine consultant. “The key features of these robotic devices include navigation capability within the ER, and sophisticated cameras for the physical examination.”



A robotic surgical system controlled by a surgeon from a console.

2. Surgical Assistants These remote-controlled robots assist surgeons with performing operations, typically minimally invasive procedures. “The ability to manipulate a highly sophisticated robotic arm by operating controls, seated at a workstation out of the operating room, is the hallmark of surgical robots,” says Keefe. Additional applications for these surgical-assistant robots are continually being developed, as more advanced 3DHD technology gives surgeons the spatial references needed for highly complex surgery, including more enhanced natural stereo visualization, combined with augmented reality.

Rehabilitation Robots These play a crucial role in the recovery of people with disabilities, including improved mobility, strength, coordination, and quality of life. These robots can be programmed to adapt to the condition of each patient as they recover from strokes, traumatic brain or spinal cord injuries, or neurobehavioral or neuromuscular diseases such as multiple sclerosis. Virtual reality integrated with rehabilitation robots can also improve balance, walking, and other motor functions.

4. Medical Transportation Robots Supplies, medications, and meals are delivered to patients and staff by these robots, thereby optimizing communication between doctors, hospital staff members, and patients. “Most of these machines have highly dedicated capabilities for self-navigation throughout the facility,” states Manoj Sahi, a research analyst with Tractica, a market intelligence firm that specializes in technology. “There is, however, a need for highly

advanced and cost-effective indoor navigation systems based on sensor fusion location technology in order to make the navigational capabilities of transportation robots more robust.”



5. Sanitation and Disinfection Robots With the increase in antibiotic-resistant bacteria and outbreaks of deadly infections like Ebola, more healthcare facilities are using robots to clean and disinfect surfaces. “Currently, the primary methods used for disinfection are UV light and hydrogen peroxide vapors,” says Sahi. “These robots can disinfect a room of any bacteria and viruses within minutes.”

6. Robotic Prescription Dispensing Systems The biggest advantages of robots are speed and accuracy, two features that are very important to pharmacies. “Automated dispensing systems have advanced to the point where robots can now handle powder, liquids, and highly viscous materials, with much higher speed and accuracy than before,” says Sahi.

Reference:<https://www.asme.org/topics-resources/content/top-6-robotic-applications-in-medicine>



Simhadri Sahithee Saranya

14A31A0595

Room Temperature Monitoring System

In today's world everything produced has a very crucial factor i.e, temperature. Everything needs to be under certain temperature and certain specified environment constraints. Plants are the most effected due to this temperature changes. Maintaining the right temperature is required for having a healthy growth of plants. If the right temperature is not maintained, the plants will die.

So, this project enables us to monitor the given environment and monitor the temperature changes in the environment.

Components required:

Bolt Wi-Fi Module and LM35 IC(Temperature sensor)



Building the system:

1. Connecting LM35 to Bolt.
2. Connecting Bolt to Cloud.
3. Visualising the Data (Plotting Graph) on the Bolt Cloud.



Working:

- The device frequently check's the temperature of the room.
- When a proximity temperature is reached the system automatically detects and sends the user a mail using "Mailer Gun" and an S.M.S using "Twilio".

Conclusion:

By using this project, not only for the purpose of healthy plant growth, it also helps us to take intense care of children for their health care.

References :

<https://docs.bolttiot.com/docs/getting-started-with-bolt-temperature-monitoring-system>



Koripella Sai Venkata Sudeepthi
14A31A0517

DRAINWARE

We understand that the privacy and security of your personal information is extremely important. Therefore, this policy establishes what we do with your information and what we do to keep it safe. It also explains where and how we collect your personal information, as well as your rights over any personal information we have about you. This policy applies to you if you use it through our mobile applications or otherwise use our websites or interact with us on social media (our “Services”).

This policy defines our firm commitment to protect your personal information. Therefore, we strongly recommend that you read and accept our privacy policy before continuing to browse. This privacy policy has been updated for the last time on January 3, 2019.

DRAINWARE SYSTEMS SL only stores your personal information to the extent that we need it in order to use it for the purposes indicated in point 5, and according to the legal basis of the treatment thereof in accordance with applicable law. Your personal information will be maintained as long as there is a contractual and / or commercial relationship or until you exercise your right to delete, cancel and / or limit the processing of your data.



Once the relationship with you has terminated for any of the reasons indicated, the information will be duly blocked, without giving any use, while it may be necessary for the

exercise or defense of claims or may derive some type of judicial, legal or Contractual treatment, which must be attended and for which recovery is necessary.

Reference: <https://www.drainware.com/privacy-policy/>



Kotturi Lakshmi Priyanka
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Silent Sound Technology

It is a technology that is used to communicate without using vocal cords. This technology mainly aims to notice lip movements. Then it detects every lip movement and Internally converts the electrical pulses into sound signals and sends them to opposite person by ignoring all other surrounding sounds. It is a wonderful solution for those who can't speak or who had lost their voices. Then they can speak in phone through this technology. Especially when talking on cell phone in a crowd the opposite person is unable to listen your words because of disturbances. A person who want share confidential matters through a cellphone can use this technology for security.

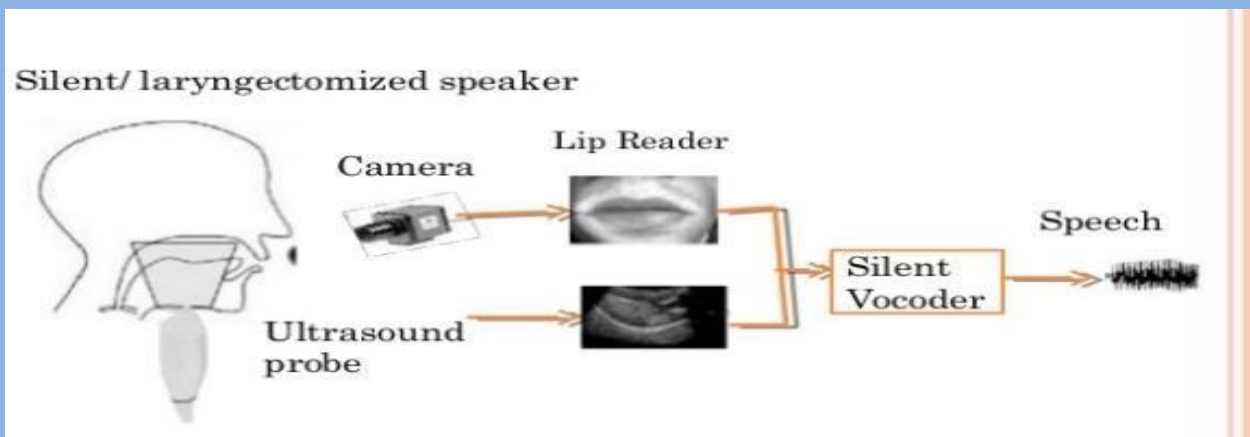


FIG: Silent sound interface using image processing

References:

https://www.slideshare.net/lohitdalal1008_jain/silent-soundtechnology-ppt-final



Ivaturi Sai Manasa
14A31A0511

ElliQ

Intuition Robotics has been working on its ElliQ “proactive social robot for older adults” for only a few years—the company, founded in 2016, has managed to secure funding from Toyota AI Ventures, Samsung, and iRobot, among others. For nearly a year, Intuition has been testing ElliQ in the homes of beta testers aged 62-97 in the San Francisco Bay Area, and things have apparently gone well enough that they’ve decided that the robot is ready to go on sale.

ElliQ is specially designed with and for older adults to give them everything they need to stay sharp, connected and engaged. Interacting with ElliQ and the world is easy and fun, and through AI she becomes even more helpful by learning what you like and need.

It enables family members to easily check-in with you and help with the day-to-day, creating more quality time together wherever you live. It suggests personalized activities at the right time, keeping you sharp, active and engaged. As you start to get to know ElliQ, she gets to know you and her suggestions grow better tailored to what you might want. It responds to you—to your voice, to your gaze, even to your touch—in ways that go beyond speech. Her body language intuitively helps you understand and communicate at a deeper level.

Reference Site : <https://spectrum.ieee.org/automaton/robotics/home-robots/elliq-a-social-home-robot-for-older-adults-now-available-for-preorder>



Muggulla Mounika
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Virtual assistant (AI assistant)

A virtual assistant, also called AI assistant or digital assistant, is an application program that understands natural language voice commands and completes tasks for the user. Such tasks, historically performed by a personal assistant or secretary, include taking dictation, reading text or email messages aloud, looking up phone numbers, scheduling, placing phone calls and reminding the end user about appointments. Popular virtual assistants currently include Amazon Alexa, Apple's Siri, Google Now and Microsoft's Cortana -- the digital assistant built into Windows Phone 8.1 and Windows 10.

Types of virtual assistants

Though this definition focuses on the digital form of virtual assistants, the term virtual assistant, or virtual personal assistant, is also commonly used to describe contract workers who work from home doing administrative tasks typically performed by executive assistants or secretaries.

Virtual assistants can also be contrasted with another type of consumer-facing AI programming, called smart advisers. Smart adviser programs are subject-oriented, while virtual assistants are task-oriented.

Virtual assistant devices and technology

Virtual assistants are typically cloud-based programs that require internet-connected devices and/or applications to work. Three such applications are Siri on Apple devices, Cortana on Microsoft Devices and Google Assistant on Android devices.

There are also devices dedicated to providing virtual assistance. The most popular ones are available from Amazon, Google and Microsoft. To use the Amazon Echo virtual assistant, called Alexa, users call out the wake word, "Alexa." A light on the device signals to the user it is ready to receive a command, which typically involves simple language requests, such as "what is the weather today," or "play pop music." Those requests are processed and stored in Amazon's cloud.

The technologies that power virtual assistants require massive amounts of data, which feeds artificial intelligence (AI) platforms, including machine learning, natural language processing and speech recognition platforms. As the end user interacts with a virtual assistant, the AI programming uses sophisticated algorithms to learn from data input and become better at predicting the end user's needs.

Virtual assistant capabilities

Virtual assistants typically perform simple jobs for end users, such as adding tasks to a calendar; providing information that would normally be searched in a web browser; or controlling and checking the status of smart home devices, including lights, cameras and thermostats.

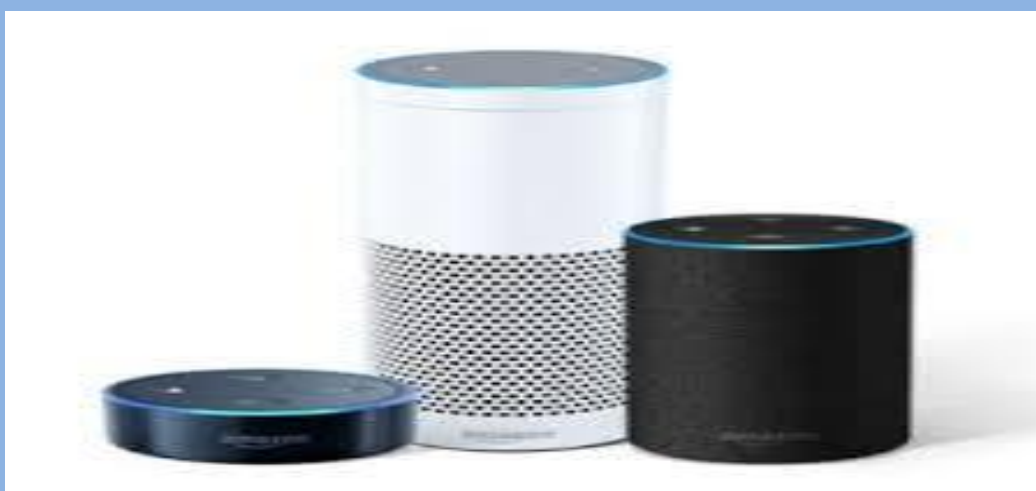
The future of virtual assistants

Virtual assistants are quickly evolving to provide more capabilities and value to users. As speech recognition and natural language processing advances, so too will a virtual assistant's ability to understand and perform requests. And as voice recognition technology improves, virtual assistant use will move deeper into business workflows.

Tomorrow's virtual assistants will be built with more advanced cognitive computing technologies, which will allow a virtual assistant to understand and carry out multistep requests and perform more complex tasks, such as making a plane reservation.



Sofia Robot



Amazon Alexa



Darapu Harika Durga
14A31A0506

Cloud Computing in the Banking Industry

The banking industry is home to a large volume of consumer data and is always eager to provide the best services to its customers. In such a scenario, the cloud computing technology serves as a transformative digital solution which offers unparalleled levels of security, agility, and scalability to the banking sector while boosting its capability to handle consumer data.



Strategically implemented **cloud computing services** allow banks to utilize resources in a highly flexible and efficient manner with the help of data analytics, data storage, and batch processing. Further, the cloud technology also helps the banking industry to improve revenues, operational efficiency, and the client servicing department.

Let us now see in detail some of the best ways the cloud computing technology benefits the banking industry:

- **Flexibility**

The cloud enables the banking industry to rapidly adapt to the ever-changing consumer and market needs. It provides an additional room for banks to meet future consumer demands and this flexibility helps banks to sustain in the market.

- **Agility**

Cloud-based services can greatly enhance the productivity, agility, and efficiency of the banking industry. It can help banks to reallocate resources and relieve their IT staff from the administration of IT infrastructure, allowing them to focus on more innovative tasks such as accelerating a product's or service's time to market.

- **Auto Scalability**

On demand cloud services enable the banking industry to automatically scale resources according to the requirements of the consumers.

- **Operational Efficiency**

The cloud technology facilitates banks with the maximum possibility of integrating new technologies and applications in future which maximizes the productivity of their operations. It allows the IT staff of banks to focus on their core business operations and improve processes for achieving higher operational efficiency. Leveraging a centralized management

of data, cloud can also help banks to eliminate complexities related to the changes and increase of data.

- **Better Client Servicing**

Cloud computing facilitates banks in faster development of products and services. It not only allows the banking industry to boost computing power in order to meet the growing demands of their customers, but also provides better insights which helps banks to create customized services for their clients.

While it is true that the cloud computing technology has the power to transform the banking sector, it is extremely important to opt for cloud computing services only from the leading cloud service providers in India having globally recognized certified consultants who have vast experience in providing banks with customized, state-of-the-art cloud solutions which help in increasing their overall business efficiency and productivity.

Reference: <https://www.e-pspl.com/blog/cloud-computing-in-the-banking-industry>



Bandaru Sai Chandana
14A31A0564

Big Data Analytics



Big data has found many applications in various fields today. The major fields where big data is being used are as follows.

Government:

Big data analytics has proven to be very useful in the government sector. Big data analysis played a large role in Barack Obama's successful 2012 re-election campaign. Also most recently, Big data analysis was majorly responsible for the BJP and its allies to win a highly successful Indian General Election 2014. The Indian Government utilizes numerous

techniques to ascertain how the Indian electorate is responding to government action, as well as ideas for policy augmentation.

- **SOCIAL MEDIA ANALYTICS**

The advent of social media has led to an outburst of big data. Various solutions have been built in order to analyze social media activity like IBM's Cognos Consumer Insights, a point solution running on IBM's BigInsights Big Data platform, can make sense of the chatter. Social media can provide valuable real-time insights into how the market is responding to products and campaigns. With the help of these insights, the companies can adjust their pricing, promotion, and campaign placements accordingly. Before utilizing the big data there needs to be some preprocessing to be done on the big data in order to derive some intelligent and valuable results. Thus to know the consumer mindset the application of intelligent decisions derived from big data is necessary.

- **TECHNOLOGY**

The technological applications of big data comprise of the following companies which deal with huge amounts of data every day and put them to use for business decisions as well. For example, eBay.com uses two data warehouses at 7.5 petabytes and 40PB as well as a 40PB Hadoop cluster for search, consumer recommendations, and merchandising. Inside eBay's 90PB data warehouse. Amazon.com handles millions of back-end operations every day, as well as queries from more than half a million third-party sellers. The core technology that keeps Amazon running is Linux-based and as of 2005, they had the world's three largest Linux databases, with capacities of 7.8 TB, 18.5 TB, and 24.7 TB. Facebook handles 50 billion photos from its user base. Windermere Real Estate uses anonymous GPS signals from nearly 100 million drivers to help new home buyers determine their typical drive times to and from work throughout various times of the day.

- **FRAUD DETECTION**

For businesses whose operations involve any type of claims or transaction processing, fraud detection is one of the most compelling Big Data application examples. Historically, fraud detection on the fly has proven an elusive goal. In most cases, fraud is discovered long after the fact, at which point the damage has been done and all that's left is to minimize the harm and adjust policies to prevent it from happening again. Big Data platforms that can analyze claims and transactions in real time, identifying large-scale patterns across many transactions or detecting anomalous behavior from an individual user, can change the fraud detection game.



Gadi Naveen
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Autonomous Mobile Robots

Many mobile robots are remotely controlled, performing tasks such as pipe inspection, aerial photography and bomb disposal that rely on an operator controlling the device. These robots are not autonomous; they use their sensors to give their operator remote access to dangerous, distant or inaccessible places. Some of them can be semi-autonomous, performing subtasks automatically. The autopilot of a drone stabilizes the flight while the human chooses the flight path. A robot in a pipe can control its movement inside the pipe while the human searches for defects that need to be repaired. Fully *autonomous mobile robots* do not rely on an operator, but instead they make decisions on their own and perform tasks, such as transporting material while navigating in uncertain terrain (walls and doors within buildings, intersections on streets) and in a constantly changing environment (people walking around, cars moving on the streets).

The first mobile robots were designed for simple environments, for example, robots that cleaned swimming pools or robotic lawn mowers. Currently, robotic vacuum cleaners are widely available, because it has proved feasible to build reasonably priced robots that can navigate an indoor environment cluttered with obstacles.

Many autonomous mobile robots are designed to support professionals working in structured environments such as warehouses. An interesting example is a robot for weeding fields (Fig. 1.4). This environment is partially structured, but advanced sensing is required to perform the tasks of identifying and removing weeds. Even in very structured factories, robot share the environment with humans and therefore their sensing must be extremely reliable.



Fig. 1.4 Autonomous mobile robot weeding a field

(Courtesy of Ecorobotix)

Perhaps the autonomous mobile robot getting the most publicity these days is the self-driving car. These are extremely difficult to develop because of the highly complex uncertain environment of motorized traffic and the strict safety requirements.

An even more difficult and dangerous environment is space. The Sojourner and Curiosity Mars rovers are semi-autonomous mobile robots. The Sojourner was active for three months in 1997. The Curiosity has been active since landing on Mars in 2012! While a human driver on Earth controls the missions (the routes to drive and the scientific

experiments to be conducted), the rovers do have the capability of autonomous hazard avoidance.

Much of the research and development in robotics today is focused on making robots more autonomous by improving sensors and enabling more intelligent control of the robot. Better sensors can perceive the details of more complex situations, but to handle these situations, control of the behavior of the robot must be very flexible and adaptable. Vision, in particular, is a very active field of research because cameras are cheap and the information they can acquire is very rich. Efforts are being made to make systems more flexible, so that they can learn from a human or adapt to new situations. Another active field of research addresses the interaction between humans and robots. This involves both sensing and intelligence, but it must also take into account the psychology and sociology of the interaction.

Reference: https://link.springer.com/chapter/10.1007/978-3-319-62533-1_1



Seela Rajasekhar
14A31A0555

Smart waste management system for smart city

In our surroundings we see waste in many places. In order to maintain clean and smart city, a system is introduced to manage waste in big cities effectively without having to monitor the parts 24x7 manually. Here the problem of unorganized and non-systematic waste collection is solved by designing an embedded IoT system which will monitor each dumpster individually for the amount of waste deposited. Here an automated system is provided for segregating wet and dry waste. A mechanical setup can be used for separating wet and dry waste into separate containers here sensors can be used for separating wet and dry.



For detecting the presence of any waste wet or dry can be detected using an IR sensor in the next step for detecting wet waste a moisture sensor can be used. In this process, if only IR is detected motor will rotate in the direction of the dry waste container if both the sensor detects the waste then it will go to the wet container. Both these containers are embedded with ultrasonic sensors at the top, the ultrasonic sensor is used for measuring distance. This makes it possible to measure the amount of waste in the containers if one of the containers is full then an alert message will be sent to the corresponding personal.

Reference:

<https://www.pantechsolutions.net/iot-based-smart-waste-management-system-for-smart-city>

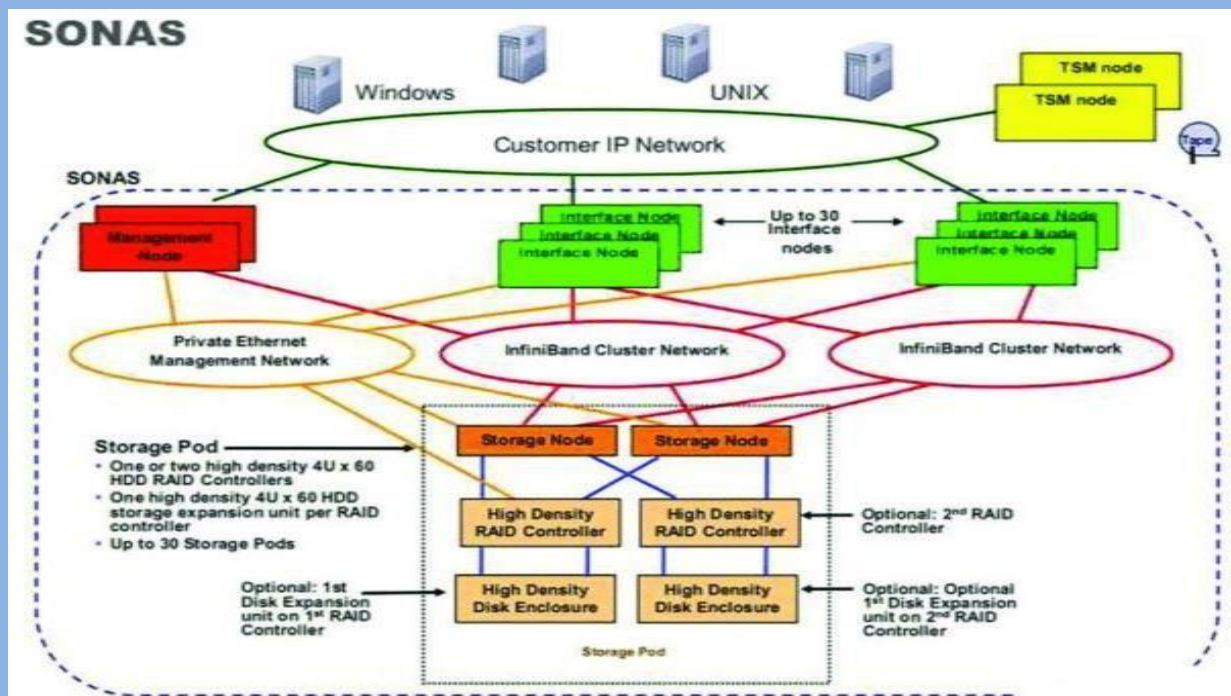


Anusuri Jaswanth Kumar
15A35A0511

Data Security Technology Based On Cloud Storage

For users, data confidentiality is one of the most popular topics in the field of cloud storage. Data is stored in a remote server, and the user has no actual control over it. In the entire storage life cycle of the data, the user cannot monitor the behavior of the cloud service provider. Whether external intruders, or internal service providers, are likely to have a threat to the confidentiality of the data. For cloud service providers, how to ensure the availability of data is essential, which is directly related to their business interests. Part of the storage node power, machine failure, and network failure cannot be caused by the collapse in anti-fed or

external invasion of external factors such as the data is incomplete or incorrect the case can still continue to provide correct data access service to users, is the key research content field of cloud storage. It used to ensure strong confidentiality of data, used to ensure that when an accident caused the loss of data, the user can still complete data recovery, to ensure the data when encountering malicious tampering, user can detect and correct the errors of the data. In order to ensure, A data security scheme based on Tornado code DSBT(data security scheme based on Tornado code A). Scheme based on Tornado code as the core, and the introduction of related technologies in the field of information security, focusing on data confidentiality, data loss and data recovery and temper recovery tamper recovery exhibition they will be regarded as a whole, the establishment of an integrated security system. Data redundancy technology closely related to the underlying storage, which determines the different data redundancy technology. For the data redundancy system, the underlying storage should be distributed storage. The definition of distributed storage is not simply defined as the distribution of the underlying storage nodes, but the file itself to be pre-cut. The file is first cut into pieces, and then the slices are spread to different storage nodes. This storage node is used by most of the existing systems.



Reference:

www.researchgate.net



Govvala Srija
14A31A0573

Internet of Things

The buzzword that no longer remains a buzzword but has become a full-fledged technology ecosystem in itself.



"The definition of the **Internet of Things** has evolved due to the convergence of multiple technologies, real-time analytics, machine learning, commodity sensors, and embedded systems."

- **IoT** is a giant network of connected devices – all of which gather and share data about how they are used and the environments in which they are operated.

- The **IoT** creates opportunities for more direct integration of the physical world into computer-based systems, resulting in efficiency improvements, economic benefits, and reduced human exertions

- **This includes everything from your:**

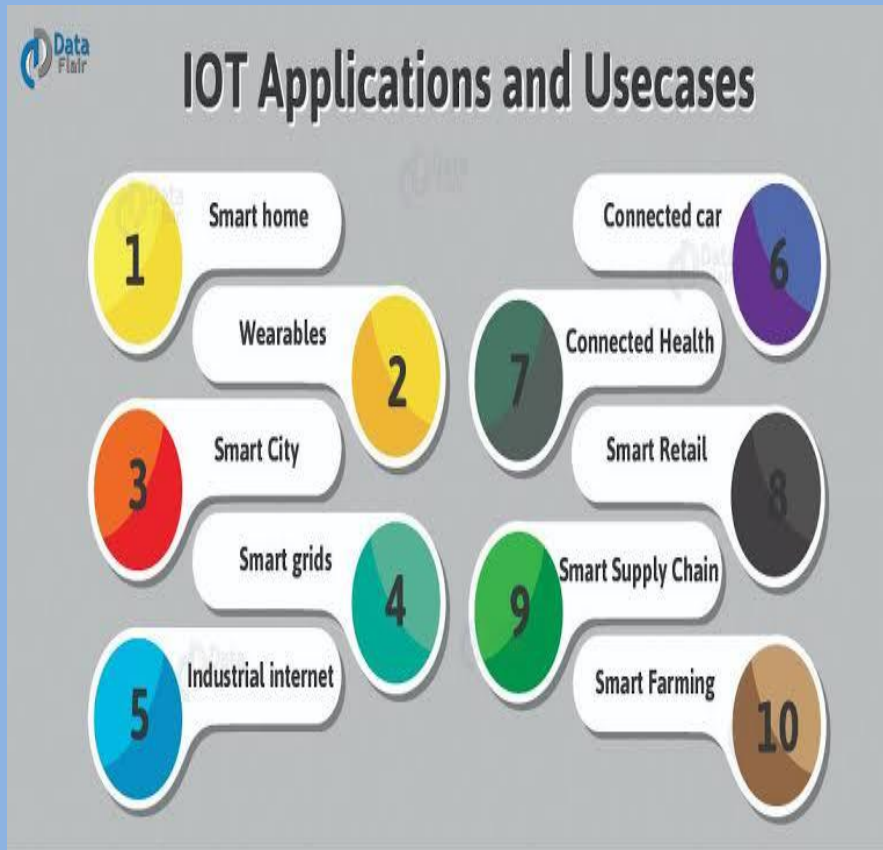
- mobile phones
- refrigerator
- washing machines to almost everything that you can think of.

- With **IoT**, we can have smart cities with optimized traffic system, efficient waste management and energy use

Applications :

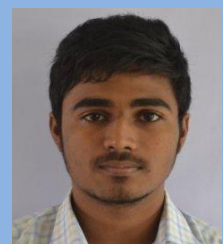
- Medical and healthcare
- Transportation
- V2X communications
- Building and home automation
- Manufacturing

- Agriculture
- Metropolitan scale deployments



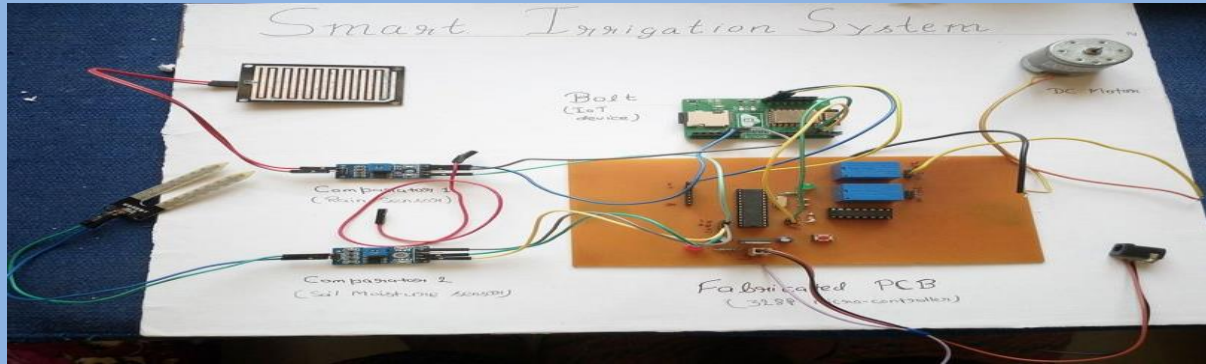
Conclusion:

- The future of **IoT** is virtually unlimited due to advances in technology and consumers' desire to integrate devices such as smart phones with household machines.



Vemula Sai Prasanth
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SMART IRRIGATION SYSTEM Using IoT # 'Built on BOLT'



The Smart Irrigation System is an IoT based device which is capable of automating the irrigation process by analyzing the moisture of soil and the climate condition (like raining). Also the data of sensors will be displayed in graph. In this project, we will command the arduino/328p microcontroller through a webpage to control the motor (i.e., to start and stop the motor) and the rest of whole irrigation process will be automatically controlled by arduino itself.

The user has only to do is –Start the motor or if he desires it can switch off the motor by just a click only.

Once the Motor pump has started- following automated condition will work

1. User can switch OFF the motor if he desires by a click on the web page.
2. The motor pump will automatically get switched OFF once the soil moisture sensor has reached the required threshold value.
3. If weather condition is such that it started raining, then the micro-controller will shut down the motor pump till raining. And after that it checks whether the soil moisture sensor has reached the threshold value or not. If it crosses the threshold value then motor pump will remain shut down otherwise it will start again automatically. This helps in saving water resource and electricity.
4. Also in case, when power supply gets cut-off and motor gets switched off. It will restart again automatically when there will be availability power supply, user will have not to worry about restarting the motor pump manually.
5. Also data of various sensor like- moisture sensor , temperature sensor, humidity sensor will be displayed on BOLT cloud in graphical form but due to limitation of BOLT i have only displayed one sensor data(moisture sensor data).

Agriculture plays a vital role in a country's economy. It is difficult for the farmer to monitor the moisture level of the whole field and supply water. IoT project like smart water irrigation system proposes here an automated water irrigation system that can analyze the moisture of soil and climate condition. Users will be able to check the moisture level, and with the predefined threshold for a moisture level of soil, the power supply will be cut-off.

Important Features

- Arduino/328p microcontroller is used to control the motor that supplies water.
- Users can switch on/off the motor from the webpage.

This internet of things example will automatically stop if it is raining.

- In future data of different sensors will be shown on the BOLT cloud in graphical form.



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Robust resource allocation for cognitive relay networks with multiple primary users

A robust resource allocation (RA) algorithm for cognitive relay networks with multiple primary users considering joint channel uncertainty and interference uncertainty is proposed to maximize the capacity of the networks subject to the interference threshold limitations of primary users' receivers (PU-RXs) and the total power constraint of secondary user's transmitter and relays. Ellipsoid set and interval set are adopted to describe the uncertainty parameters. The robust relay selection and power allocation problems are separately formulated as semi-infinite programming (SIP) problems. With the worst-case approach, the SIP problems are transformed into equivalent convex optimization problems and solved by Lagrange dual decomposition method. Numerical results show the impact of channel uncertainties and validation of the proposed robust algorithm for strict guarantee the interference threshold requirements at different PU-RXs.

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Mining Spatial Association Rules to Automatic Grouping of Spatial Data Objects Using Multiple Kernel-Based Probabilistic Clustering

With the extensive application of spatial databases to various fields ranging from remote sensing to geographical information systems, computer cartography, environmental assessment, and planning, discovery of interesting and hidden knowledge in the spatial databases is a considerable chore for classifying and using the spatial data and knowledge bases. The literature presents different spatial data mining methods to mine knowledge from spatial databases. In this paper, spatial association rules are mined to automatic grouping of spatial data objects using a candidate generation process with three constraint measures, such as support, confidence, and lift. Then, the proposed multiple kernel-based probabilistic clustering is applied to the associate vector to further group the spatial data objects. Here, membership probability based on probabilistic distance is used with multiple kernels, where exponential and tangential kernel functions are utilized. The performance of the proposed method is analyzed with three data sets of three different geometry types using the number of rules and clustering accuracy. From the experimentation, the results proved that the proposed multi-kernel probabilistic clustering algorithm achieved better accuracy as compared with the existing probabilistic clustering.

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A Corner Potential Flow based Shape Descriptor for Object Recognition

Automated object recognition methods are essential for numerous applications of machine vision and pattern recognition. For an efficient object representation, a contour-based shape descriptor is designed, with a one dimensional shape signature. The present paper proposes a novel shape signature for recognizing the objects in complex plane. The proposed shape signature is applied on the contour shape representation, and then the description of representative shape features with the corner potential flow measure followed by the Fourier transformation. During recognition process, the Euclidean distance measure is evaluated to estimate the similarity score between the objects. The recital of the proposed shape descriptor has been checked with the Kimia 99 database. The experimental results are found to be robust and invariant to transformations.

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Robust Query Processing For Privacy Deficient Location Based Service Provider

Our proposed presents a distributed system which provides robustness up to a certain degree for privacy deficient location based service providers(LBSP's).The LBSP's facilitate spatial top-k query processing considering the point of interests(POI's) from a region with respect to highest ratings corresponding to specific POI attribute.

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Minimal Start Time Heuristics for Scheduling Workflows in Heterogeneous Computing Systems

Heterogeneous computing systems require efficient task-to-processor mapping for attaining high performance. Scheduling workflows on heterogeneous environments is shown to be NP-Complete. Several heuristics were developed to attain minimum schedule lengths. However, these algorithms employ level-wise approach of scheduling tasks. This indirectly assigns higher priority to the tasks at lower levels than those at higher levels. Further, the start time of tasks at higher levels is constrained by the completion times of tasks at lower levels. The present work proposes a novel heuristic based global scheduling algorithm namely Minimal Start Time (MST) algorithm for workflows. The proposed approach focuses on minimizing the start times of tasks which are dependent on the tasks at lower levels to generate shorter span schedules. The primary merit of this scheme is due to the elimination of level constraints whenever there are no dependency constraints. The performance of MST algorithm is evaluated in terms of normalized makespan, speedup, efficiency and improvement of 5–20 % in 80 % of the cases is achieved in comparison to the earlier work.



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