REAL TIME COMUNICATION SYSTEM AI FOR SPECIALY ABLED

INTRODUCTION:

In our society, we have people with disabilities. The technology is developing day by day but no significant developments are undertaken for the betterment of these people. Communications between deaf-mute and a normal person has always been a challenging task. It is very difficult for mute people to convey their message to normal people. Since normal people are not trained on hand sign language. In emergency times conveying their message is very difficult. The human hand has remained a popular choice to convey information in situations where other forms like speech cannot be used. Voice Conversion System with Hand Gesture Recognition and translation will be very useful to have a proper conversation between a normal person and an impaired person in any language

The project aims to develop a system that converts the sign language into a human hearing voice in the desired language to convey a message to normal people, as well as convert speech into understandable sign language for the deaf and dumb. We are making use of a convolution neural network to create a model that is trained on different hand gestures. An app is built which uses this model. This app enables deaf and dumb people to convey their information using signs which get converted to human-understandable language and speech is given as output.

LITERATURE SURVEY:

1.**parallel control management for intelligent transportation systems**:

Parallel control and management have been proposed as a new mechanism for conducting operations of complex systems, especially those that involved complexity issues of both engineering and social dimensions, such as transportation systems. This paper presents an overview of the background, concepts, basic methods, major issues, and current applications of Parallel transportation Management Systems (PTMS)

Parallel control and management have been proposed as a new mechanism for conducting operations of complex systems, especially those that involved complexity issues of both engineering and social dimensions, such as transportation systems. This paper presents an overview of the background, concepts, basic methods, major issues, and current applications of Parallel transportation Management Systems (ptms). In essence, parallel control and management is a data-driven approach for mod

modeling, analysis, and decision-making that considers both the engineering and social complexity in its processes. The developments and applications described here clearly indicate that PTMS is effective for use in networked complex traffic systems and is closely related to emerging technologies in cloud computing, social computing, and cyberphysical-social systems. A description of PTMS system architectures, processes, and components,

including OTST, Dyna CAS, ADAPTS, ITOP, and Transworld is presented and discussed.Finally, the experiments and examples of real-world applications are illustrated and Analyzed.

Advantage:

- Reduction in stops and delays at intersections.
- 2.Speed control & improvement.
- 3.Travel time improvement.
- 4.Capacity management.
- 5.Incident management.

Dis advantage:

the two systems at the same time. It is a great expense in terms of electricity and operation costs. This would be prohibitive with a large and complex system. The cost of implementation is very expensive because of the need to operate

2. Real-time scheduling for energy harvesting sensor nodes:

Energy harvesting has recently emerged as a feasible option to increase the operating time of sensor networks. If each node of the network, however, is powered by a fluctuating energy source, common power management solutions have to be reconceived. This holds in particular if real-time responsiveness of a given application has to be guaranteed. Task scheduling at the single nodes should account for the properties of the energy source, capacity of the energy storage as well as deadlines of the single tasks. We show that conventional scheduling algorithms (like e.g. EDF) are not suitable for this scenario. Based on this motivation, we have constructed optimal scheduling algorithms that jointly handle constraints from both energy and time domain. Further we present an admittance test that decides for arbitrary task sets, whether they can be scheduled without deadline violations. To this end, we introduce the concept of energy variability characterization curves (EVCC) which nicely captures the dynamics of various energy sources. Simulation results show that our algorithms allow significant reductions of the battery size compared to Earliest Deadline First scheduling.

Advantage:

It is scalable and hence can accommodate any new nodes or devices at any time. It is flexible and hence open to physical partitions. All the WSN nodes can be accessed through centralized montoring system. As it is wireless in nature, it does not require wires or cables.

Disadvantage:

These type of sensors offer good stability and resolution, while are known for their high speed efficiency, power usage and low cost. On the contrary the major drawback of such sensors is that they are affected by both temperature and environment. Therefore this makes their application limited.

3.HIGH SPEED RAILWAY COMMUNICATION:FROM GSM-R TO LTE-R

High-speed railways (HSRs) improve the quality of rail services, yield greater customer satisfaction, and help to create socioeconomically balanced societies [1]. This highly efficient transport mode creates significant challenges in terms of investment, technology, industry, and environment. To handle increasing traffic, ensure passenger safety, and provide real-time multimedia information, a new communication system for HSR is required. In the last decade, public networks have been evolving from voice-centric second-generation systems, e.g., Global System for Mobile Communications (GSM) with limited capabilities, to fourth-generation (4G) broad-band systems that offer higher data rates, e.g., long-term evolution (LTE). It is thus relevant for HSR to replace the current GSM-railway (GSM-R) technology with the next-generation railway-dedicated communication system providing improved capacity and capability.

Advantage:

LTE-R, which could be based on LTE standard, is a likely candidate to replace GSM-R in the future for the following reasons: i) LTE has many advantages over GSM in terms of capacity and capabilities; ii) as a fully packet-switched based network, LTE is better suited for data communications; iii) LTE offers a more ...

DIS ADVANTAGE:

High-speed rail is generally regarded as the pinnacle of attractive and green transportation. But all too often, it makes train travel more expensive and less flexible. In the end, costly high-speed lines may just push more people into cars.

4. 6G and beyond: The future of wireless communications systems:

High-speed railway communications: From GSM-R to LTE-R Ruisi He, Bo Ai, Gongpu Wang, Ke Guan, Zhangdui Zhong, Andreas F Molisch, CesarRodriguez, Claude P Oestges leee vehIcular technology magazine 11 (3), 49-58, 2016

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6G and beyond will fulfill the requirements of a fully connected world and provide ubiquitous wireless connectivity for all. Transformative solutions are expected to drive the surge for accommodating a rapidly growing number of intelligent devices and services. Major technological breakthroughs to achieve connectivity goals within 6G include: (i) a network operating at the THz band with much wider spectrum resources, (ii) intelligent communication environments that enable a wireless propagation environment with active signal transmission and reception, (iii) pervasive artificial intelligence, (iv) large-scale network automation, (v) an all-spectrum reconfigurable front-end for dynamic spectrum access, (vi) ambient backscatter communications for energy savings, (vii) the Internet of Space Things enabled by CubeSats and UAVs, and (viii) cell-free massive MIMO.

Advantage:

6G (sixth-generation wireless) is the successor to 5G cellular technology. 6G networks will be able to use higher frequencies than 5G networks and provide substantially higher capacity and much lower latency.

DISADVANTAGE:

Compatibility issues will are common disadvantages of 6G Technology. The 6th generation technology has compatibility issues with older devices, which causes a problem for many consumers who want to use this new network but cannot because their device does not support it.

5. Multi-agent systems: which research for which applications

For sometime now agent-based and multi-agent systems (MASs) have attracted the interest of researchers far beyond traditional computer science and artificial intelligence (AI). In this article we try to identify focal points of interest for researchers working in the area of distributed AI (DAI) and MAS as well as application-oriented researchers coming from related disciplines, e.g. electrical and mechanical engineering. We do this by presenting key research topics in DAI and MAS research and by identifying application domains in which the DAI and MAS technologies are most suitable. The research topics we discuss are separated into agent architectures and organisations, negotiation among agents, and self-adaptation of MAS using learning techniques. Regarding the application domains for these techniques we distinguish the application domains according to whether the agents control a physical or virtual body (Gestalt) or not. This separation of the application domains is not strict; it represents two ends of a continuum. On the one end of this continuum we have autonomous robot systems which act in a physical environment (sometimes referred to as hardware agents), and on the other end, we have abstract

environments, such as in workflow systems, which rarely display the geometrical and physical aspects of the environment we are used to living in.

Advantage:

An MAS provides solutions in situations where expertise is spatially and temporally distributed. An MAS enhances overall system performance, specifically along the dimensions of computational efficiency, reliability, extensibility, robustness, maintainability, responsiveness, flexibility, and reuse.

Disadvantage:

There are also a lot of disadvantages and drawbacks, compared to traditional software systems: limited predictability, understandability and control. accident- and error-prone system.

6. Designing the next generation of real-time control, communication, and computations for large power systems:

The power grid is not only a network interconnecting generators and loads through a transmission and distribution system, but is overlaid with a communication and control system that enables economic and secure operation. This multilayered infrastructure has evolved over many decades utilizing new technologies as they have appeared. This evolution has been slow and incremental, as the operation of the power system consisting of vertically integrated utilities has, until recently, changed very little. The monitoring of the grid is still done by a hierarchical design with polling for data at scanning rates in seconds that reflects the conceptual design of the 1960s. This design was adequate for vertically integrated utilities with limited feedback and wide-area controls; however, the thesis of this paper is that the changing environment, in both policy and technology, requires a new look at the operation of the power grid and a complete redesign of the control, communication and computation infrastructure. We provide several example novel control and communication regimes for such a new infrastructure.

Advantage:

NGS allows you to screen more samples cost-effectively and detect multiple variants across targeted areas of the genome—an approach that would be costly and time-consuming using Sanger sequencing.

Disadvantage:

- High cost, low throughput, time consuming and insufficient sensitivity to identify somatic variants in tumor samples. Use: primarily research applications, limited / declining clinical applications, validation tool for NGS data+
- Low multiplexing capability. Rate of substitution errors is high. Instrument cost is high. A highly trained personnel can only operate.

7. Real-time co-creation and nowness service: lessons from tourism and hospitality:

Brands take advantage of technology, social media and constant connectivity to foster organic consumer engagement and interactions towards co-creating personalised customer service. Real-time service offers dynamic engagement with connected consumers. Brands in tourism and hospitality use technology to dynamically enhance consumer experience through co-creation. The integration of real-time consumer intelligence, dynamic big data mining, artificial intelligence, and contextualisation can transform service co-creation by mobilising recourses in the ecosystem. Nowness service emerges by dynamically engaging consumers in experience cocreation in real time. It has five interconnected characteristics that revolutionise the tourism and hospitality, namely: real-time, co-creation, data-driven, consumer-centric and experience co-creation.

Advantage:

Real-time co-creation and nowness service: lessons from tourism and hospitality. Brands take advantage of technology, social media and constant connectivity to foster organic consumer engagement and interactions towards co-creating personalised customer service.

Disadvantage:

- Intense use of resources.
- Physical damage to natural and marine areas.
- Increased waste, pollution and emissions.
- Land use and infrastructure development.

8. The challenges of real-time AI:

The research agendas of artificial intelligence and real-time systems are converging as AI methods move toward domains that require real-time responses, and real-time systems move toward complex applications that require intelligent behavior. They meet at the crossroads in an exciting new subfield commonly called "real-time AI." This subfield is still being defined, and the precise goals for various real-time AI systems are in flux. Our goal is to identify promising areas for future research in both real-time and AI techniques. We describe an organizing conceptual structure for current real-time AI research, exploring the meanings this term has acquired. We then identify the goals of real-time AI research and specify some necessary steps for reaching them

Advantage:

- High Speed. One of the reasons for improvement in the quality of life is personal computer's speed.
- Accuracy. Human make errors.
- Automation. A lot of tasks can be automated saving a lot of time.
- Storage.
- Ease of Access.
- Multitasking.
- Better understanding of data
- Reduced Cost for Online Ventures.

Disadvantage:

- Carpal tunnel and eye strain
- Too much sitting
- Short attention span and too much multitasking.
- Can limit learning and create a dependency.
- Potential of loss of privacy.
- Time sink and lots of distractions.
- Increases waste and impacts the environment.
- Can reduce jobs.

9. Artificial intelligence defined 5G radio access networks:

Massive multiple-input multiple-output antenna systems, millimeter-wave communications, and ultra-dense networks have been widely perceived as the three key enablers that facilitate the development and deployment of 5G systems. This article discusses the intelligent agent that combines sensing, learning, and optimizing to facilitate these enablers. We present a flexible, rapidly deployable, and cross-layer artificial intelligence (AI)-based framework to enable the imminent and future demands on 5G and beyond. We present example AI-enabled 5G use cases that accommodate important 5G-specific capabilities and discuss the value of AI for enabling network evolution.

Advantage:

The main advantages of the 5G are a greater speed in the transmissions, a lower latency and therefore greater capacity of remote execution, a greater number of connected devices and the possibility of implementing virtual networks (network slicing), providing more adjusted connectivity to concrete needs.

Disadvantage: Cybersecurity Risk: Another drawback of 5G technology is it increases the risk of hacking thus impinging on cybersecurity. Moreover, lack of encryption during the connection process also makes the devices using 5G technology an easier target for cyberattacks and data theft

10. Active, real-time urban intersection control:

The usability and effectiveness of traffic control systems greatly depends on its ability of reacting upon traffic patterns and permutations. In this research we investigate the applicability of autonomous intelligent agents in Urban Traffic Control (UTC), and why these artificial intelligent strategies are useful in UTC. We propose a system that autonomously can adapt itself, based upon internal rules and its environment, at changing environments. Both long term changes as well as short term changes are accounted for in different manner. The UTC model is primarily based on several Intelligent Traffic Signalling Agents (ITSA) and some authority agents. This approach enables us to use a UTC system, based on agent technology, capable of responding to traffic conditions in real-time. The system can maintain its integrity and stability within the overall transportation system. Due to its pro-active behaviour we are able to make better use of the capacity of intersections.

Advantage:

Traffic control signals provide for an orderly movement of traffic. They help in reducing the frequency of an accident of some special nature of right angles accidents. They intercept heavy traffic to allow other traffic to cross the road intersection safety

Disadvantage:

Wasting time of motorists and passengers ("opportunity cost")

Delays, which may result in late arrival for employment, meetings, and education, resulting in lost business, disciplinary action or other personal losses.

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