E-NEWS LETTER

Computer Applications

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LATEST UPDATES WORLD

Service Robotics

Service robotics has long captivated Hollywood, with many robot characters appearing in science-fiction films and television series. In the 1950s, for example, the film Forbidden Planet featured a servant named Robby the Robot. Fifty years later, Robin Williams played a domestic-household android robot in Bicentennial Man. In Disney Pixar's 2008 WALL·E, the protagonist is a garbage-compacting robot that falls in love with an environmental probe droid..

Over time, the distance between science fiction and reality has diminished significantly. Soon, service robots will help us carry out most of our everyday tasks, whether at home or in the office, while traveling, shopping, and much more.

The October 2016 issue of Computing Now presents an overview of both traditional and emerging service robotics applications, as well as highlights relevant research directions. We have selected six papers that we hope will inspire you to dig further into the literature of this incredibly rich domain. Industrial or Service Robot?

According to the International Federation of Robotics, a service robot "performs useful tasks for humans or equipment (excluding automation applications)." In other words, it's not the hardware that distinguishes an industrial robot from a service robot, but the intended application. Although service robots are often mobile, even a stationary robotic manipulation arm that's typically used in manufacturing to perform repetitive and high-precision tasks can be regarded as a service robot when used in a different context. It should not be surprising that Joe Engelberger — the founding father of industrial robotics — conducted early experiments with service robots and, in the '90s, commercialized a robotic courier called HelpMate for hospital use.

Another way to differentiate between industrial and service robots is degree of autonomy: industrial robots are mostly fully automatic, whereas service robots are generally characterized by varying levels of autonomy, which can even be adjusted dynamically to move from full autonomy to tele-operation. Generally referred to as "adjustable autonomy," this possibility is one of the factors that make the set of

application scenarios envisioned for service robotics extremely wide and heterogeneous.

Service robots can be organized into two broad categories:

Professional robots are often managed by qualified operators and perform commercial tasks such as cleaning and patrolling public places, helping in surgical and fire-fighting operations, serving customers in retail stores, and entertaining people in amusement parks and museums.

Personal robots are frequently used by lay people for domestic purposes — typical examples being home and family servants, pet companions, and mobility assistants.

The Difficult Path to Commercialization

Despite the incredible range of possible uses for robots, industrial applications (especially in the car and consumer electronics industries) have been the dominant sector, with a 2015 market value of more than US $32 billion and steady growth predicted in coming years.

According to Silicon Valley Robotics, the number of successful service robotics companies is still very limited. Nonetheless, service robots are becoming increasingly mainstream. More than 10 million iRobot Roombas are vacuuming homes and offices all over the world, far surpassing the 1.5 million industrial robots currently in use. Market segments such as defense, agriculture, logistics, and medicine are developing quickly, and certain niche areas such as humanoid helpers and kiosk robots — although proving more difficult to pass from research to commercialization — are nonetheless expected to virtually explode in the next few years.

Challenges in the field are associated mainly with the difficulty in implementing autonomous behaviors with the required levels of context awareness, safety, and compliance. Finding suitable interfaces that let different types of users program and interact with robots in an intuitive and flexible way is also difficult. As we slowly solve these issues, humans will learn to trust our robotic helpers, progressively delegating an ever-larger number of our menial and repetitive tasks.

In this Issue

In "Telexistence: Enabling Humans to Be Virtually Ubiquitous," Susumu Tachi illustrates the evolution of the concept of "telexistence," which refers to human users having the sensation of being physically present in a different place. The article presents several solutions dating back to the 1980s that have been deployed with robotic avatars and exploit retro-reflective projection technology, immersive head-mounted displays, physical exoskeleton-based and hand tracking-based control, and haptic feedback. According to the author, telexistence technology is reaching a level of sophistication that will soon let it transfer most human physical functions, thus enabling remote work and operations that have never before been possible.

In "An Open Approach to Autonomous Vehicles," Shinpei Kato and his colleagues argue that one of the catalysts for the evolution of robotic solutions for autonomous vehicles will be the increasing availability of open resources. The article offers a review of available software platforms (such as the Robot Operating System), algorithms (for object detection and tracking, mission planning, and so on), and datasets that could be considered for carrying out engineering tasks related to next-generation autonomous vehicles — self-driving cars being just one of the best-known examples.

The next article, "A Heterogeneous Fleet of Vehicles for Automated Humanitarian Missions," deals with issues pertaining to coordinating groups of autonomous vehicles in support of a common goal. Pieter J. Mosterman and his colleagues show how cyber-physical systems can be helpful in designing and validating the sophisticated robotic solutions that will be required to implement the automated emergency-response systems of the future.

In "Design and Evaluation of a Touch-Centered Calming Interaction with a Social Robot," Yasaman S. Sefidgar and her colleagues describe the design of a fully interactive therapeutic robot companion. Based on the principles of human-animal therapy, they created a robotic animal capable of serving as a valid component of a person's anxiety management. This affective touch-based robot, which they call the Haptic Creature, adjusts its synthetic breath based on received strokes. People who participated in a user study reported feeling calmer and happier after the experiments.

"Impact of Using an Educational Robot-Based Learning System on Students' Motivation in Elementary Education" aims to provide reliable empirical evidence of robots' effectiveness in education. Authors Kay-Yi Chin, Zeng-Wei Hong, and Yen-Lin Chen designed a learning system that augments digital content with robotic behaviors. During the lesson, a humanoid robot interacts with the class by asking questions, inviting students to think, and clapping its hands when a correct answer is provided. Results of a study carried out with elementary school students indicated that educational robot-based systems can create

an interesting, engaging learning experience, at the same time providing teachers with more time to assist struggling students.

The final article, "Graphical Instruction for Home Robots," tackles one of the greatest challenges of service robotics: human-robot interaction. Daisuke Sakamoto and his colleagues evaluate different types of user interfaces for controlling heterogeneous robots that carry out such common tasks as cooking and folding clothes. Their results emphasize the key role that interaction design will play in the possible success of service robots in the near future.

Conclusion

Considering the variety of application opportunities for service robotics and the number of potential users, as well as the annual growth rate of about 11.5 percent (and up to 150 percent for certain areas, such as mobile platforms), it's easy to see the market's potential and to forecast a promising future.

We hope that this issue of Computing Now sheds some light on developments that are in progress in the field, as well as some of the most important issues that will have to be addressed in the years to come.

SRMS Trust institutions observe Shri Ram Murti Ji's 28th death anniversary by awarding scholarships of Rs 2 crores

On 2nd October 2016, institutions run by the SRMS Trust (SRMS College of Engineering & Technology Bareilly, SRMS College of Engineering, Technology & Research Bareilly, SRMS Institute of Medical Sciences Bareilly, SRMS College of Engineering & Technology Unnao, International Business School Unnao and others)) observed Shri Ram Murti Ji's 28th death anniversary, besides celebrating the birth anniversaries of Shri Lal Bahadur Shastri and Mahatma Gandhi.

Rich tributes were paid to the freedom fighter, former UP minister, and former parliamentarian Shri Ram Murti Ji at the auditorium of SRMS College of Engineering & Technology Bareilly. Prof. Jitender Singh started the proceedings, quoting "Jab hum paida hue, jag hasa hum roye, kuch aisi karni kar chale, hum hase jag roye". Mr. Subhash Patel (ex Mayor) appreciated the initiatives of the SRMS Trust in the field of Engineering & Medical education. He further added "The horizon of the health care services offered by the Trust are now not only limited to Rohilkhand Region but has expanded to the entire Kumaon region and the state of U.P." He shared a number of instances reflecting the strong value system of Late Shri Ram Murti Ji and added that it is excellent to see that his values are still alive throughout the SRMS Leadership Teams, Faculty, Staff and the students. Mr. Shyamlal Kannojia (a close companion of Late Shri Ram Murti ji) and Dr. KP Singh joined students in the tributes.

On the occasion, approximately Rs 2 crores worth of scholarships from SRMS Trust were awarded. This corpus of scholarships is one of the largest by a single trust in India. Shri Ram Murti Ji always inspired and worked for the deserving students from the economically weaker sections of society.

Initially stated in 1991 with a modest amount of Rs7,320, the allocations of scholarships have spread wider and deeper. From Rs 1 crore in 2007, the amount was increased to Rs 2 crores in 2009, with plans to further increase the amount. Starting from the 10+2 levels, the scholarships now cover under-graduate and technical education as well.

Apart from the scholarships, the Trust also honoured the winners of its annual national story writing and debating competitions. These were initiated in 1995 to promote creativity and extracurricular learning. The topics for these competitions are usually chosen to represent contemporary societal issues to maximise relevant learning. This years theme were global warming and the soon to be introduced GST tax. The award from junior wing (Class 10+2) was bagged by BBL School, Bareilly and from the senior wing (Undergraduate level), Maharaja Agresen PG College, Bareilly received the Chalvaijyanti Puraskar.

Chairman Shri Dev Murti ji briefed the audience regarding the future plans, and gave the glimpses of the current ventures of the Trust. He presented the statistics of the charitable activities done by the Trust in the field of health care through Hospital on Wheels, Tele-Medicine OPD of Bhairpura and SRMS Multi Super Specialty Hospital itself throughout the Rohilkhand Region. He shared that All India Talent Scholarship announced on 2nd October last year has been initiated and scholarship of around Rs.20 Lacs have been awarded for promoting research in the prescribed fields throughout the country. He further added that though this scholarship scheme is open to all, SRMS Alumnus are given preference. He shared the success of SSY (Samudayik Swasthya Yojana) wherein a family can have medical treatment of up to Rs. 50000/=

per year on subscribing the scheme at Rs.365/= per year. He announced that 'Classroom on Wheels', equipped with Smart Board is being inaugurated today for promoting literacy in rural areas through Rotary Club – Bareilly West under the Presidency of Mr. Shailendra Deva. Dev Murti Ji announced to open a super speciality budget hospital at Arjun Ganj, Lucknow by February 2018.

Further, he announced that an emergency care unit would soon be launched at stadium road, Bareilly, wherein the patients can be offered emergency care for 24 hours before shifting to the SRMS Hospital.

He congratulated the students for their achievements, and advised them to focus on their goals, saying "The only thing that stands between you and your dreams is the will to try and the belief that it is actually possible".

Mr. Aditya Murti offered his tribute to his great grandfather in his vote of thanks to all the guests and students. He congratulated the scholarship recipients and made an appeal to put more efforts this year so that the Scholarship Budget may be increased to Rs. 4 crores.

STUDENTS CORNER

From Zero to Hero: How Zero-Rating Became a Debate about Human Rights

Zero-rating and the claim that everyone has a right to Internet connectivity is conflicting with the argument for net neutrality. Will free data services via mobile phones worldwide privilege a few content providers, or provide valu - able access to

information and services for low-income people?

Zero-rating has sneaked up on us. Until 2013 it was a bit of a marginal preoccupation, mainly an issue for those involved with the technopolitics of the Internet. People didn't fully understand net neutrality, or how zero- rating related to it. That was until Mark Zucker - berg announced that Internet connectivity was a human right, 1 and that his new creation, inter - net.org, would provide free mobile data to those who couldn't afford data plans. The debate really started when in India the project simultaneously met resistance from regulators and support from the country's ruling party, causing India's tech community to explode. Suddenly, instead of being an issue for specialists, zero-rating became what the Electronic Frontier Foundation called "the bleeding edge of net neutrality." 2 The issue is in play worldwide, but some of the most vehement debate has been about its role in developing countries. Zero-rating has become a tumultuous international soap opera — as though the ill-starred lovers Zuckerberg and Narendra Modi, locked in passionate embrace, have been torn apart by India's heart - less regulators, various swashbuckling young activist organizations are locked in battle with corporate villains, and the international

tech community has stepped in as the Greek chorus. All that's missing is dragons. Meanwhile, low- and middle-income countries from Indonesia to Malawi are quietly getting on with consuming zero-rated services from a variety of different providers without too much fuss.

Shubhrat Mishra
MCA-2015

FACULTY ARENA

PARENTS APPS

This apps is developed for parents. By using this apps parents can direct communicate with the director of the college and also parents can share there ideas with college.
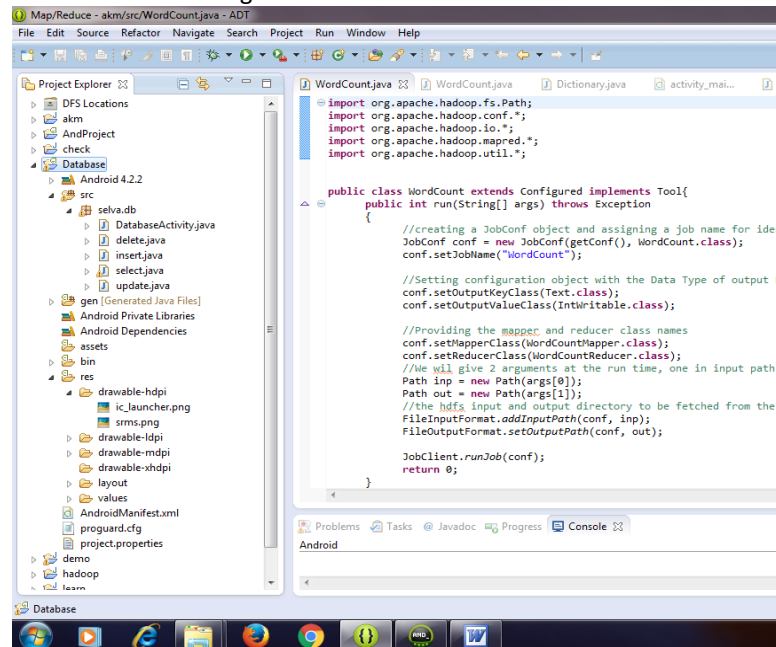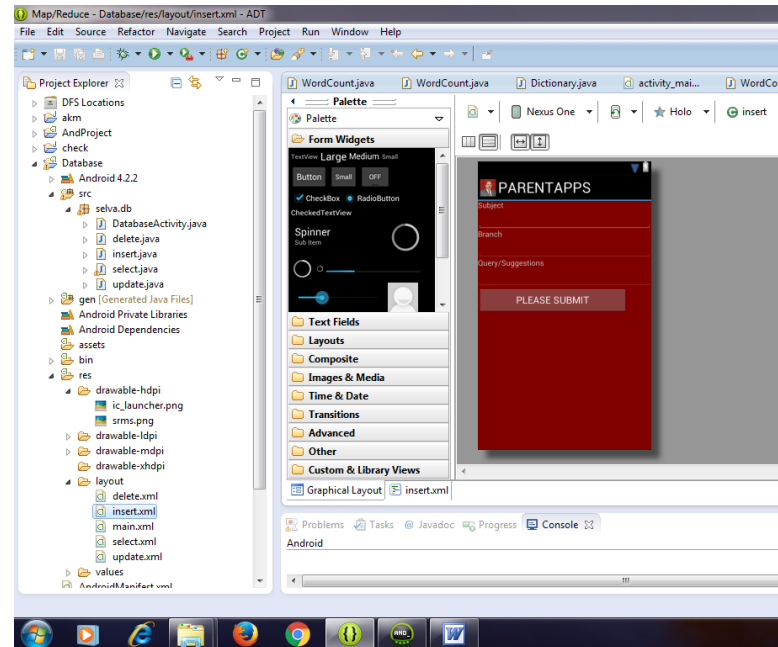

Here I use three classes, first class will call the onactivity method, which is used as a main method, this method will call the its xml/layout file.

This is the main page , after clicking on this page ,the message page will automatically called.

This is the layout of the apps.

Parents will enter the his/her messages, to director of the college.When parents will submit the data, the data will automatically go to the director of the college.

Arvind Mishra
Asst. Professor