

## E-NEWS LETTER

### Master of Computer Applications

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#### LATEST UPDATE WORLD

**A wearable robot that assists people with walking**

In recent years, roboticists have introduced increasingly advanced systems, which could open exciting new possibilities for surgery, rehabilitation, and health care assistance. These robotic systems are already helping to improve the quality of life of many people with disabilities, as well as patients who suffered physical trauma or underwent medical procedures.



Researchers at Chung-Ang University in South Korea recently introduced a new wearable robot designed to specifically assist humans who have difficulties walking due to aging, muscle weakness, surgeries or specific medical conditions. This robot, presented in a paper published in *Science Robotics*, was found to improve balance, while also reducing the energy spent while walking (i.e., the so-called metabolic cost).

"Our recent paper was primarily inspired by the recognition that most wearable robots for gait assistance have focused solely on movements in the sagittal plane," Giuk Lee, one of the researchers who carried out the study, told Tech Xplore. "However, walking is inherently a three-dimensional activity, and movements in other planes are just as crucial."

In contrast with other robotic systems for hip abduction assistance proposed in the past, the robot created by Lee and his colleagues focuses on the frontal plane. This is the frontal part of the human body, known to support movements and lateral stability while walking.

"Traditionally, research on walking motion has considered forward movement and lateral balance as separate functions," Myunghee Kim, co-author of the paper, said. "Only recently has the fore-aft direction's assistance been acknowledged for its contribution to lateral stability. Yet, the reverse—the influence of lateral assistance on fore-aft walking efficiency—remains insufficiently explored."

The key assumption behind the researchers' study is that the metabolic cost of walking could be reduced using wearable robots that mimic the natural hip abduction moment. This is the movement of the leg away from the body's midline, which supports walking and many other actions humans perform every day.

"The wearable robot for hip abduction assistance that we've developed operates on the principle that walking efficiency can be improved by supporting lateral body movements," Lee said.



"As we walk forward, our body's center of mass naturally shifts side to side to maintain balance—a process known as recovery. During this recovery phase, the hip abduction muscles are engaged. Our device assists these muscles, making it easier for the wearer to recover their center of mass with less effort."

Lee and his colleagues evaluated their robot's performance in both simulations and real-world experiments. The results of these tests were highly promising, showing that the robot reduced the metabolic cost of walking by 11.6% compared to normal, unassisted walking, while also improving balance and stability.

"Our study demonstrates that enhancing gait efficiency doesn't require the wearable robot to focus only on the sagittal plane," Lee said. "Since walking is a three-dimensional motion, it's essential to consider movements across various planes."

Essentially, the hip abduction assistance robot developed by Lee and his colleagues influences the movements of the hips and legs known to support walking. Its unique design allows it to effectively 'replace' part of the efforts that humans would normally place when walking.

"Our study demonstrates a substantial role for lateral assistance in enhancing walking efficiency by facilitating a more effective transfer of the body's center of mass from one foot to the other," Kim added. "This insight is especially encouraging for individuals with

reduced muscle strength, offering a new direction for support mechanisms. Moving forward, it will be important to explore how lateral assistance could help those with limited mobility, potentially transforming rehabilitation and support strategies."

In the future, the robotic system developed by this team of researchers could be improved further and eventually commercialized, supporting both rehabilitation and everyday use. The robot could prove useful for older adults, patients who underwent leg or hip surgeries, and other people who experience difficulties walking.

"For future research, we plan to delve deeper into how hip abduction affects walking balance," Lee added. "We've observed that hip abduction not only improves gait efficiency but may also influence balance. We aim to explore the potential of wearable robots in enhancing walking balance."

## DEPARTMENT UPDATE

**Alumni Lecture on "Salesforce"**  
**6<sup>th</sup> November - 2023**

स्थान: एसआरएमएससीईटी, एमबीए सेमिनार हॉल  
श्री राम मूर्ति स्मारक कॉलेज ऑफ इंजीनियरिंग एंड टेक्नोलॉजी, बरेली में प्रशिक्षण, विकास और प्लेसमेंट सेल ने 6 नवंबर, 2023 को 10:20 से दोपहर 12:10 तक "सेल्सफोर्स" विषय पर ऑनलाइन मोड के माध्यम से एमबीए सेमिनार हॉल में एक ज्ञान प्रेरित पूर्व छात्र व्याख्यान का आयोजन किया।  
हमारी विशेष अतिथि और मुख्य वक्ता निधि बिस्वास, एमसीए बैच-2019, एसआरएमएससीईटी की पूर्व छात्रा है जो वर्तमान में क्लाउड एनालॉजी में सेल्सफोर्स डेवलपर के रूप में काम कर रही हैं।

यह ऑनलाइन सत्र विशेष रूप से एमसीए प्रथम वर्ष और द्वितीय वर्ष के छात्रों के लिए डिज़ाइन किया गया था जो उन्हें सेल्सफोर्स की दुनिया के बारे में बहुमूल्य अंतर्दृष्टि और इसकी कैरियर संभावनाएं प्रदान करते हैं।



**Online Session on "Introduction to Automated Testing Tool - Selenium"**  
**26<sup>th</sup> November - 2023**

Training, Development and Placement Cell at Shri Ram Murti Smarak College of Engineering and Technology, Bareilly organized an online Guest Lecture on the topic "Introduction to Automated Testing Tool - Selenium" on 26<sup>th</sup> November, 2023 from 11:00 AM To 1:00 P.M. for MCA 1<sup>st</sup> & 2<sup>nd</sup> year students 2022 & 2023 batch.  
Speaker, "Mr. Pranay Biswas" was a strong quality assurance professional with vast knowledge in latest technologies like Selenium,

Appium, Maven and Test automation. He holds an Engineering degree from NIT. He is currently working as Sr. Software developer with FI, Bangalore.



## COLLEGE UPDATE

**AKTU Sports Fest**  
**7<sup>th</sup> & 8<sup>th</sup> November - 2023**

Venue: SRMSCET, Main Ground

Dr. APJ Abdul Kalam Inter-Technical University Sports Fest, 7 & 8 November- 2023 Zonal Level came to an exhilarating conclusion on 8<sup>th</sup> November with thrilling final matches & remarkable performances at Zonal Center - Shri Ram Murti Smarak College of Engineering & Technology (SRMS CET), Bareilly.

Fifteen colleges, twelve of which are affiliated with AKTU, participated in the two-day event, which featured a range of sporting disciplines including as basketball, badminton, volleyball, chess, table tennis, and athletics. The colleges

represented the districts of Bareilly and Moradabad.

Over 603 students participated from the different institutions. Athletics and Table Tennis were the Event's highlights on Day 2. In the athletics competition, there were track events for boys and girls in the 100, 200, 400, and 800 meters; moreover, there were events for long jump and high jump. shotput, javelin, discuss throw, and 4\*100 relay are among the events for boys and girls.

At a lavish farewell ceremony held at SRMS CET, the AKTU Sports Fest came to an end. Dr. Sovan Mohanty, DSW, gave a summary of the event and thanked the winners and competitors. Later, during the closing and prize-distribution ceremony, the winners of every sporting event were declared.







## देवउठनी एकादशी

23<sup>rd</sup> November, 2023

स्थान: राधा मोहन मंदिर (SRMSCETR)

कार्तिक शुक्ल पक्ष की एकादशी प्रबोधिनी, देवउठनी एकादशी नाम से विख्यात है। प्रबोधिनी एकादशी को देवोत्थान एकादशी या देवथान के रूप में भी जाना जाता है।

यह चतुर्मास की चार महीने की अवधि के अंत का प्रतीक है, इन चार महीने में भगवान विष्णु निद्रा में होते हैं। ऐसा माना जाता है कि विष्णु शयनी एकादशी को सोते हैं और प्रबोधिनी एकादशी पर जागते हैं, इस प्रकार इस दिन को प्रबोधिनी एकादशी, विष्णु-प्रबोधिनी और हरि-प्रबोधिनी, देव-प्रबोधिनी नाम दिया गया है।

राधा मोहन मंदिर में SRMSCET & SRMSCETR द्वारा संयुक्त रूप से देवोत्थान एकादशी 23 नवंबर, 2023 को मनाया गया। शिक्षकों एवं छात्रों द्वारा जलाए गए हजारों दीयों की रोशनी में मंदिर शानदार ढंग से चमक रहा था। यह हमारी समृद्ध पारंपरिक विरासत और आस्था को संजोने का कार्यक्रम था।

इस सामूहिक प्रयास ने न केवल एक शांत और शांतिपूर्ण माहौल बनाया, बल्कि आसपास के वातावरण को रोशनी और सजावट के मनमोहक दृश्य में बदल दिया। समारोह में भव्य आरती, मंत्रोच्चार और गहन भक्ति से मनमोहक दृश्य उत्पन्न हुआ।



