E-NEWS LETTER

Master of Computer Applications

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LATEST UPDATES WORLD

A framework that allows four-legged robots to follow a leader in both daytime and nighttime conditions

Legged robots have significant advantages over wheeled and track-based robots, particularly when it comes to moving on different types of terrains. This makes them particularly favorable for missions that involve transporting goods or traveling from one place to another.
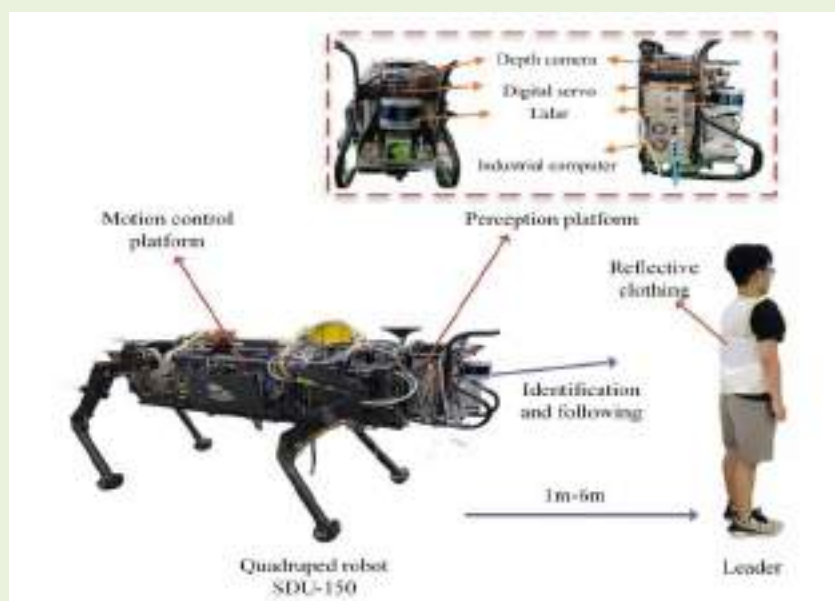
One promising approach that allows legged robots to effectively tackle these missions, particularly those that involve long-distance traveling, entails teaching them to follow a "leader," whether a specific vehicle or human agent. However, this can be difficult to achieve, particularly under all lighting and atmospheric conditions.

Day/night Leader-following Algorithm Framework.
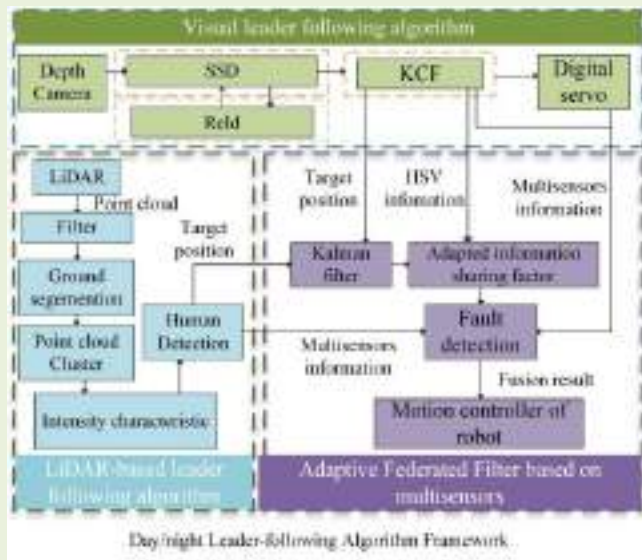
Researchers at Shandong University in China have recently developed a new framework that could provide four-legged robots with leader-following abilities in both nighttime and daytime conditions. This framework, introduced in MDPI's Biomimetics journal, is based on visual and LiDAR detection technology.

"Leader-following can help quadruped robots accomplish long-distance transportation tasks," Jialin Zhang, Jiamin Guo, Hui Chai, Qin Zhang, Yibin Li, Zhiying Wang and Qifan Zhang wrote in their paper. "However, long-term following has to face the change of day and night as well as the presence of interference. To solve this problem, we present a day/night leader–following method for quadruped robots toward robustness and fault-tolerant person following in complex environments."

To be effective, leader-following frameworks should allow robots to accurately detect and identify specific people under different lighting conditions, so that they can then follow them to a desired location. The method proposed by Zhang, Guo and their colleagues achieves this using three different modules: a person detection, a communication and a motion control module.

"We construct an Adaptive Federated Filter algorithm framework, which fuses the visual leader-following method and the LiDAR detection algorithm based on reflective intensity," Zhang and his colleagues wrote in their paper. "Moreover, the framework uses the Kalman filter and adaptively adjusts the information sharing factor according to the light condition. In particular, the framework uses fault detection and multi-sensors information to stably achieve day/night leader-following."

A unique feature of the leader-following framework introduced by the researchers is its use of a fault detection and isolation algorithm, which is designed to significantly improve its performance in both daytime and nighttime conditions. This algorithm relies on the data collected by several different sensors and on computations ran by a detection algorithm, which allow it to adapt to high-frequency vibrations, different levels of illumination and possible visual interferences caused by reflective materials in the surrounding environment.

Zhang, Guo and their colleagues evaluated their proposed framework in a series of trials using SDU-150, a quadruped robot developed at Shandong University. These tests yielded very promising results, as the robot was able to identify leaders reliably and effectively in various scenarios. The robot was tested in both indoor and outdoor environments, at day and at night and under different lighting conditions.

In the future, the leader-following framework developed by this team of researchers could help to improve the leader-following abilities of other existing and newly developed robots. In addition, it could potentially inspire the development of similar approaches designed to enhance the ability of robots to detect and track specific targets under different lighting conditions.

"The next step will combine sensor fusion with deep learning to perform data-level multisensor fusion, which greatly improves the detection accuracy and adapts to the high-precision operating situation," the researchers conclude in their paper.

DEPARTMENT ACTIVITY

1. Zero hour activity on 5th January, 2023
(Wall Magazine Decoration)

On 5th January, 2023 MCA first year students took the initiative in club activity and presented a Wall Magazine with 4-different sections and revealed their creative ideas. The sections included some information about the top 10 IT companies; a completely different section was made which included the photograph of the student having highest attendance in the class and placed of the student.

The last section was for the top 10 emerging technologies which included all the information about the technology. Last but not the least hard work and dedication of students resulted in great appreciation throughout the college.

➢ **Zero Hour Activity (Football Match)**
12th January-2023

Venue: SRMSCET Football Ground

On 12th January 2023, the MCA department organized a Football Match in the club activity hour. In which all the faculty members were present to motivate students.
This game was held between two teams:

Team 1- Aditya Sarswat, Manthan Gupta, Ritik Kumar Saxena, Yashi, Prashant Rajpoot, Gyanendra, Mansi Prajapati, Vishal kashyap and Saurabh Tiwari

Team-2: Vishal Sharma, Pradeep Kumar, Sanskriti Gupta, Yashika, Pankaj Kumar, Rahul Kuniyal, Mohit Kumar, Nikhil Kumar, Abhishek Maheshwari

All the players were holding a good time and giving their best performance but Team-1won the match.

➤ **Zero hour activity (Volleyball Competition) 19th January-2023**

Venue: Main Ground

On 19th January 2023, the MCA department organized a volleyball match in the club activity hour. In which Mr. Vijay Kumar Dubey was present to motivate students.

This game was held between two teams:

Team 1- Ritik Kumar Saxena, Yashi, Prashant Rajpoot, Gyanendra, Mansi Prajapati, Vishal kashyap and Saurabh Tiwari, Sanskriti

Team-2: Aditya Sarswat, Manthan Gupta, Anshika Saxena, Anand Prakash, Mohit, Pooja Rohit Shrivastava, Harsh wardhan. All the players were holding a good time and giving their best performance but Team-2 won the match.

➤ **Placement of MCA Final Year Student (Batch-2021)**

SRMSCET, Bareilly congratulates MCA Final year student Mr. Anshul Kumar for his placement with Startelelogic at the CTC of Rs 3.6 LPA.

COLLEGE UPDATE

➢ **Online Alumni Lecture**
  19th January-2023

Venue: New Seminar Hall

The Training, Development and Placement Cell at SRMSCET, Bareilly organized an Online Alumni Lecture on the topic 'Atomic Qualities for Fascinating Career' on 19th January-2023 at New Seminar Hall (for SRMSCET students) and Mini Auditorium (for SRMS CETR students), which was delivered by the Special Guest and Key Note Speaker, Vivek Singh, Alumnus BTech (2000 Batch), a Sqaud Leader, Emerging Business Student Debt. The target audience of the lecture will be B Tech Second year and MCA First year students.

➢ **Republic Day Celebration & Cricket Match**
  26th January-2023

स्वतंत्रता की भावना और मां सरस्वती के आशीर्वाद को ध्यान में रखते हुए SRMSCET संस्थान, बरेली ने 26 जनवरी, 2023 को 74वां गणतंत्र दिवस और बसंत पंचमी मनाई।

कार्यक्रम की शुरुआत दीप-प्रज्ज्वलन समारोह के साथ हुई, जिसके बाद एसआरएमएस ट्रस्ट के अध्यक्ष श्री देव मूर्ति ने ध्वजारोहण किया जिसमें ट्रस्ट सचिव आदित्य मूर्ति, डीन एकेडमिक्स डॉ प्रभाकर गुप्ता; डीन स्टूडेंट वेलफेयर कपिल भूषण, ट्रस्ट के सलाहकार इंजीनियर सुभाष मेहरा, निदेशक टीडीपी सेल डॉ अनुज कुमार और चीफ प्रॉक्टर सोवन मोहंती उपस्थिति रहे ।

देशभक्ति समारोह राष्ट्रगान के साथ आगे बढ़ा, इसके तुरंत बाद छात्र-छात्राओं की टोली ने मधुर स्वर में देशभक्ति के गीत गाए।

इसके बाद श्री देव मूर्ति द्वारा एक प्रेरक भाषण दिया गया, जिसमें उन्होंने छात्रों से वर्तमान परिदृश्य में इंटरनेट विशेष रूप से 'गूगल' की मदद लेने के बजाय पुस्तकों से ज्ञान प्राप्त करने का आग्रह किया। उन्होंने छात्रों को शैक्षणिक मोर्चे पर अच्छा प्रदर्शन करने के लिए प्रोत्साहित किया। अपने प्रेरक भाषण में उन्होंने सभी को बसंत पंचमी की शुभकामनाएं दीं।

इसके बाद, डॉ प्रभाकर गुप्ता ने दर्शकों को संबोधित किया, और हम नागरिकों की जिम्मेदारी की भावना पर प्रकाश डाला, और पेटेंट परियोजनाओं और संकाय सदस्यों और छात्रों द्वारा किए गए शोध के बारे में जानकारी दी।

छात्रवृत्ति वितरण एक अतिरिक्त आकर्षण था जिसमें 166 छात्रों ने छात्रवृत्ति प्राप्त की। बैच 2022 के प्रथम वर्ष के छात्रों को प्रवेश स्तर की छात्रवृत्ति परीक्षा 2022 से

सम्मानित किया गया, जबकि दूसरे वर्ष के 2021 बैच के छात्रों को SRMS ट्रस्ट द्वारा अकादमिक छात्रवृत्ति प्राप्त हुई।

एम सी ए विभाग से 2022 बैच के प्रथम वर्ष के तीन छात्रों को भी प्रवेश स्तर की छात्रवृत्ति परीक्षा 2022 से सम्मानित किया गया जिसमें अदित्य सारस्वत को 40,000/- ऋतिक सक्सेना को 10,000/- एवं मंथन गुप्ता को 10,000/- रुपये की धनराशि प्राप्त हुई।

गणतंत्र दिवस समारोह का समापन सरस्वती वंदना और टायरो के सचिव सुधांशु वर्मा द्वारा धन्यवाद ज्ञापन के साथ हुआ ।जिसके बाद प्रसाद वितरण किया गया।

गणतंत्र दिवस की भावना का जश्न मनाते हुए, 26 जनवरी, 2023 को SRMSCET क्रिकेट मैदान में संकाय और स्टाफ सदस्यों के बीच एक 'दोस्ताना क्रिकेट मैच' खेला गया। रोमांचक मैच गणतंत्र दिवस और बसंत पंचमी समारोह के तुरंत बाद शुरू हुआ।

SRMS ट्रस्ट के अध्यक्ष श्री देव मूर्ति, ट्रस्ट सचिव आदित्य मूर्ति, डीन एकेडमिक्स डॉ प्रभाकर गुप्ता, डीएसडब्ल्यू कपिल भूषण, ट्रस्ट सलाहकार इंजी. सुभाष मेहरा, चीफ प्रॉक्टर डॉ. सोवन मोहंती और निदेशक टीडीपी सेल डॉ. अनुज कुमार की उपस्थिति में खिलाड़ियों के परिचय के साथ दोस्ताना मैच उत्साहपूर्वक शुरू हुआ।

TEAM-1 (SRMS CET) ने 134 रन बनाए, और TEAM-2 (SRMS IMS) ने 128 रन बनाए। अंत में टीम SRMS CET ने 6 रन से मैच जीत लिया। मैच का समापन श्री देव मूर्ति के प्रेरक शब्दों के साथ हुआ ।