भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

Media/Publication	The Pioneer		
Date	11th June, 2026	Language	English
Headline	IIT researchers advance arsenic detection tech		

For safer drinking water

IIT researchers advance arsenic detection tech

Portable 'ArsenSafe' device offers affordable solutions

RAJEEV RATHAN ■ Bhubaneswar

Researchers at the IIT Bhubaneswar have developed advanced technologies for detecting arsenic contamination in drinking water, offering affordable and field-deployable solutions to address a major public health concern.

The breakthrough comes from the Sensors and Spectroscopy Research Group of the School of Electrical and Computer Sciences (SECS) led by Dr Sayan Dey. Their work focuses on developing sensitive, cost-effective technologies for monitoring arsenic levels in drinking water.

As part of the initiative, the team has developed "ArsenSafe", a compact handheld arsenic detection device through Nano Semic Pvt Ltd, a startup incubated at the Research and Entrepreneurship Park of IIT Bhubaneswar. The startup is led by institute faculty members Dr Sayan Dey and Dr Akshay K.

Designed for rapid, on-site testing, ArsenSafe can accurately detect arsenic without requiring laboratory infrastructure or chemical reagents. Based on reduced graphene oxide (rGO) sensing technology, the device is easy to operate and requires minimal training. It can be used by government agencies, public health departments, environmental monitoring organisations, water treatment providers, industries, NGOs and individual consumers. The prototype has achieved a high Technology Readiness Level (TRL) and has been successfully tested on water samples from the IIT campus and nearby areas.

The research has also received international recognition. In a recent paper published in Environmental Science: Nano, a journal of the Royal Society of Chemistry (RSC), Dr Dey and his team Arijit Pattra, Bathula Sathwik and Dr Himanshu P Padole presented an advanced micro-sensor based on reduced graphene oxide and its derivatives capable of detecting extremely low levels of arsenic in drinking water in line with World Health Organisation safety standards.

The study demonstrated the potential of combining nanotechnology and machine learning to improve water quality monitoring, public health and sanitation. The Editorial Board of Environmental Science: Nano has selected the article for inclusion in its special themed collection on "Nanosensing".

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Indian Institute of Technology Bhubaneswar

Media/Publication	The Etv Bharat		
Date	10th June, 2026	Language	English
Headline	IIT Bhubaneswar Researchers Develop Portable Device For Rapid Arsenic Detection in Drinking Water		
Link	https://www.etvbharat.com/en/technology/iit-bhubaneswar-researchers-develop-portable-device-for-rapid-arsenic-detection-in-drinking-water-enn26061005555		

Bhubaneswar: Researchers at the Indian Institute of Technology, Bhubaneswar (IIT-BBS) have developed an affordable, sensitive and field-deployable solution for detecting arsenic contamination in drinking water. High levels of arsenic in potable water have been a major concern in many parts of India and abroad. The research team of the School of Electrical and Computer Sciences (SECS) has developed a compact, handheld arsenic detection device, named ArsenSafe, through Nano Semic Pvt. Ltd., a startup incubated at the Research and Entrepreneurship Park of IIT Bhubaneswar.

"Access to safe drinking water remains a critical challenge in many regions affected by arsenic contamination. Our objective was to develop a technology that is not only highly sensitive but also affordable and easy to deploy in the field," said Dr Sayan Dey, a faculty member of IIT- BBS. The device can give faster results during on-site testing by detecting accurate arsenic amounts in water at a lower cost without requiring any laboratory infrastructure or chemical reagents, said Dey. "ArsenSafe has the potential to bridge the gap between laboratory-based testing and real-time water quality assessment, enabling quicker decision-making and preventive action," he added.
The device is based on reduced graphene oxide (rGO) sensing technology and can be operated with minimal

training, making it suitable for use by government agencies, public health departments, environmental monitoring organisations, water treatment providers, industries, non-governmental organisations and individual consumers, the IIT research team informed.

According to the researchers, the current prototype has attained a high Technology Readiness Level (TRL) and has already been tested on water samples collected from the IIT Bhubaneswar campus and surrounding areas.

The findings of the research team, comprising Dr Sayan Dey, Arijit Pattra, Bathula Sathwik and Dr Himanshu P Padole, were published in the latest edition of the journal 'Environmental Science: Nano' of the prestigious Royal Society of Chemistry (RSC). The study described a new sensor based on reduced graphene oxide (rGO) that can detect very low levels of arsenic in drinking water, in line with the safety standards set by the World Health Organisation (WHO).

"The study combined nanotechnology and machine learning to enhance the sensitivity and reliability of arsenic detection. This would play a big role in improving human health protection and environmental monitoring," said Dr Himanshu P. Padole, another faculty member of the institute. Recognising the importance of the work, the Editorial Board of Environmental Science: Nano has invited the research article to be featured in its special themed collection on “Nanosensing”, said IIT-BBS sources.

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

Media/Publication	The Times of India		
Date	10th June, 2026	Language	English
Headline	IIT Bhubaneswar researchers develop portable device for accurate arsenic detection in water		
Link	https://timesofindia.indiatimes.com/city/bhubaneswar/iit-bhubaneswar-researchers-develop-portable-device-for-accurate-arsenic-detection-in-		

The IIT Bhubaneswar researchers

Bhubaneswar: Researchers at Indian Institute of Technology (IIT) Bhubaneswar have developed a portable device that can rapidly and accurately detect arsenic contamination in drinking water, offering a potential solution to a major public health challenge.

The handheld device, named ArsenSafe, has been developed by Nano Semic, a startup led by faculty members Sayan Dey and Akshay K, and incubated at the Research and Entrepreneurship Park of IIT Bhubaneswar.

Dey, who heads the Sensors and Spectroscopy Research Group at the School of Electrical and Computer Sciences (SECS), says the team's research has focused on developing affordable, sensitive and field-deployable technologies for arsenic detection in drinking water.

The device uses a reduced graphene oxide (rGO)-based sensing system and is designed for easy operation with minimal training and set-up requirements, Dey says.

According to the researchers, the device can be used by govt agencies, public health departments, environmental monitoring organisations, water treatment providers, industries, non-governmental organisations and even individual consumers.

The TRL is a method for estimating the maturity of technologies during the acquisition phase of a programme.

The innovation assumes significance as arsenic contamination remains a major public health concern in severa parts of India and across the world. In Odisha, a study by Central Ground Water Board (CGWB) had found arsen concentrations exceeding the Bureau of Indian Standards (BIS) permissible limit of 0.01 mg/l in districts such as Gajapati, Ganjam, Bhadrak, Kendrapara and Jagatsinghpur.

The innovation comes alongside international recognition for the research team. In a recent paper published in Environmental Science: Nano, a journal of the Royal Society of Chemistry (RSC), Dey and his team, including researchers Arijit Pattra, Bathula Sathwik and Himanshu P Padole, presented the advanced microsensor based o reduced graphene oxide and its derivatives that can detect extremely low concentrations of arsenic in drinking water, in line with World Health Organisation safety standards.

The study integrates nanotechnology with machine learning to enhance the accuracy and sensitivity of arsenic detection. Recognising the significance of the work, the journal's editorial board has invited the paper to be featured in its special themed collection on 'Nanosensing'.

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Indian Institute of Technology Bhubaneswar

Media/Publication	Edex Live		
Date	10th June, 2026	Language	English
Headline	IIT Bhubaneswar creates portable device for arsenic testing in water		
Link	IIT Bhubaneswar creates portable device for arsenic testing in water - https://www.edexlive.com/news/iit-bhubaneswar-develops-portable-device-for-rapid-arsenic-detection-in-water		

Bhubaneswar, Jun 10 (PTI): Researchers at IIT Bhubaneswar have developed a portable device for rapid detection of arsenic in drinking water, offering a low-cost and field-deployable solution to address a major public health concern, officials said on Wednesday.

The research was carried out by a team from the Sensors and Spectroscopy Research Group of the School of Electrical and Computer Sciences (SECS), led by Sayan Dey, focusing on affordable, sensitive and field-deployable technologies for arsenic detection.

According to a statement by the institute, the team developed a compact handheld arsenic detection device, named 'ArsenSafe', through a startup incubated at the Research and Entrepreneurship Park of IIT Bhubaneswar.

Designed for rapid, cost-effective and on-site testing, the device enables accurate detection of arsenic contamination without the need for laboratory infrastructure or chemical reagents, making water-quality assessment faster and more accessible, it said.

"ArsenSafe uses an rGO-based sensing system and is designed for easy operation with minimal setup and training requirements," the statement said.

The device can be deployed by government agencies, public health departments, environmental monitoring organisations, water treatment providers, industries, non-governmental organisations and individual consumers, it added.

The institute said the current prototype has achieved a high Technology Readiness Level (TRL) and has been successfully tested on water samples collected from the IIT Bhubaneswar campus and adjoining areas.

Arsenic contamination in groundwater remains a major challenge in several parts of India and across the world, making the development of reliable field-testing technologies critical for public health and water-quality monitoring.

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

Media/Publication	The Rediff		
Date	10th June, 2026	Language	English
Headline	IIT Bhubaneswar Unveils Portable Device for Rapid Arsenic Detection in Water		
Link	https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://m.rediff.com/news/report/iit-bhubaneswar-develops-portable-arsenic-		

IIT Bhubaneswar researchers have unveiled 'ArsenSafe', a groundbreaking portable device designed for rapid, low-cost, and on-site detection of arsenic in drinking water, offering a vital solution to a significant global public health crisis.

Key Points

- IIT Bhubaneswar researchers developed 'ArsenSafe' for rapid arsenic detection in drinking water.
- The portable device offers a low-cost, field-deployable solution without needing laboratory infrastructure.
- 'ArsenSafe' uses an rGO-based sensing system for easy operation and accurate on-site testing.
- The device is crucial for addressing widespread arsenic contamination in groundwater, particularly in India.
- It has achieved a high Technology Readiness Level (TRL) and been successfully tested on local water samples.

Researchers at IIT Bhubaneswar have developed a portable device for rapid detection of arsenic in drinking water, offering a low-cost and field-deployable solution to address a major public health concern. The research was carried out by a team from the Sensors and Spectroscopy Research Group of the School of Electrical and Computer Sciences (SECS), led by Sayan Dey, focusing on affordable, sensitive and field-deployable technologies for arsenic detection.

Introducing ArsenSafe: A Breakthrough In Water Testing

According to a statement by the institute, the team developed a compact handheld arsenic detection device, named 'ArsenSafe', through a startup incubated at the Research and Entrepreneurship Park of IIT Bhubaneswar. Designed for rapid, cost-effective and on-site testing, the device enables accurate detection of arsenic contamination without the need for laboratory infrastructure or chemical reagents, making water-quality assessment faster and more accessible, it said.

How ArsenSafe Works And Its Impact

"ArsenSafe uses an rGO-based sensing system and is designed for easy operation with minimal setup and training requirements," the statement said. The device can be deployed by government agencies, public health departments, environmental monitoring organisations, water treatment providers, industries, non-governmental organisations and individual consumers, it added.

The institute said the current prototype has achieved a high Technology Readiness Level (TRL) and has been successfully tested on water samples collected from the IIT Bhubaneswar campus and adjoining areas. Arsenic contamination in groundwater remains a major challenge in several parts of India and across the world, making the development of reliable field-testing technologies critical for public health and water-quality monitoring.

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

Media/Publication	The United News of India		
Date	11th June, 2026	Language	English
Headline	IIT Bhubaneswar researchers develop 'Arsen Safe' portable device for rapid arsenic detection in water		
Link	https://share.google/WJkGb3Qs6cgKSKKAF		

Bhubaneswar, June 10 (UNI) Researchers from the Sensors and Spectroscopy Research Group of the School of Electrical and Computer Sciences (SECS) at the Indian Institute of Technology (IIT) Bhubaneswar have developed an innovative portable arsenic detection device, named "ArsenSafe", aimed at enhancing water quality monitoring and safeguarding public health.

The compact, handheld device has been developed through Nano Semic Pvt. Ltd., a startup incubated at the Research and Entrepreneurship Park of IIT Bhubaneswar. The initiative is led by Dr. Sayan Dey and Dr. Akshay K., faculty members of the institute.

The research team, headed by Dr. Sayan Dey, has made significant strides in developing affordable, highly sensitive and field-deployable technologies for detecting arsenic contamination in drinking water—an issue that continues to pose serious health risks in many parts of India and across the globe.

Designed for rapid, cost-effective and on-site testing, ArsenSafe enables accurate detection of arsenic without requiring laboratory infrastructure or chemical reagents. The innovation is expected to make water quality assessment faster, easier and more accessible, particularly in remote and resource-constrained areas.

The handheld device employs a reduced graphene oxide (rGO)-based sensing platform and has been designed for simple operation with minimal setup and training. It can be deployed by government agencies, public health departments, environmental monitoring organisations, water treatment service providers, industries, non-governmental organisations and individual consumers.

According to the researchers, the current prototype has achieved a high Technology Readiness Level (TRL) and has been successfully tested on water samples collected from the IIT Bhubaneswar campus and nearby areas.

In a significant academic achievement, the team recently published its findings in the journal Environmental Science: Nano, published by the Royal Society of Chemistry (RSC). The study, authored by Dr. Sayan Dey, Arijit Patra, Bathula Sathwik and Dr. Himanshu P. Padole, presents an advanced micro-sensor based on reduced graphene oxide and its derivatives for detecting extremely low concentrations of arsenic in drinking water, in compliance with World Health Organization (WHO) safety standards.

The research highlights the potential of integrating nanotechnology with machine learning to develop highly effective water-quality monitoring solutions, contributing significantly to public health and sanitation.

Recognising the importance of the work, the Editorial Board of Environmental Science: Nano has invited the article to be featured in its special themed collection on "Nanosensing".

The development of ArsenSafe and the international recognition received by the research underscore IIT Bhubaneswar's growing contribution to nanotechnology-driven environmental monitoring and its commitment to addressing critical societal challenges through scientific innovation and entrepreneurship.

UNI DP ARN

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Indian Institute of Technology Bhubaneswar

Media/Publication	The Samaja		
Date	11th June, 2026	Language	Odia
Headline	Development of technology of detecting arsenic in drinking water		

ପାନୀୟଜଳରେ ଆର୍ସେନିକ ଚିହ୍ନଟ ପ୍ରଯୁକ୍ତି ବିଦ୍ୟାର ବିକାଶ

ଜଟଣୀ,୧୦।୬ (ନି.ପ୍ର) : ପାନୀୟଜଳର ଗୁଣବତ୍ତା ନିରୀକ୍ଷଣ ଏବଂ ଜନସ୍ୱାସ୍ଥ୍ୟକୁ ଉନ୍ନତ କରିବା ନିମନ୍ତେ ପାନୀୟଜଳରେ ଆର୍ସେନିକ ଚିହ୍ନଟ ପ୍ରକ୍ରିୟାରେ ପ୍ରଯୁକ୍ତି ବିଦ୍ୟାର ଗୁରୁତ୍ୱପୂର୍ଣ୍ଣ ବିକାଶ କରାଯାଇଛି। ଆଇଆଇଟିର ଗବେଷକମାନେ ଡ.ସାୟନ ଦେଙ୍କ ନେତୃତ୍ୱରେ ଏହାର ମନିଟରିଂ କରା ଯାଉଥିବା ଆଇଆଇଟି ସୂଚନା ଦେଇଛି। ନାନୋ ସେମିକ ପ୍ରା. ଲି. ମାଧ୍ୟମରେ 'ଆର୍ସେନସେଫ' ନାମକ ଏକ କମ୍ପାକ୍ଟ ପୋର୍ଟେବଲ୍ ଏବଂ ହାତରେ ଧରି ରଖା ଯାଇଥିବା ଆର୍ସେନିକ ଚିହ୍ନଟ ଡିଭାଇସ୍ ବିକଶିତ କରିଛି। ଯାହା ଆଇଆଇଟି ଗବେଷଣା ଓ ଉଦ୍ୟୋଗିତା ଉଦ୍ୟାନରେ ଇନ୍‌କୁବେଟେଡ୍ ହୋଇଛି। କମ ଖର୍ଚ୍ଚ ଏବଂ ନିର୍ଦ୍ଦିଷ୍ଟ ସ୍ଥାନରେ ପରୀକ୍ଷଣ ଓ ଡିଜାଇନ କରା ଯାଇଥିବା ଆର୍ସେନସେଫ୍ ପ୍ରୟୋଗଶାଳା ଭିତ୍ତିଭୂମି ଏବଂ ରାସାୟନିକ ଆବଶ୍ୟକତା ବିନା ସଠିକ ଆର୍ସେନିକ ଚିହ୍ନଟ କରିବା ଲାଗି ସକ୍ଷମ ହୋଇଥାଏ। ଯାହା ଜଳ ଗୁଣବତ୍ତା ମୂଲ୍ୟାଙ୍କନକୁ ଦ୍ରୁତ ଓ ସୁଲଭ କରିଥାଏ। ଆଇଆଇଟି ବର୍ତ୍ତମାନର ପ୍ରୋଟୋଟାଇପ ଉଚ୍ଚ ପ୍ରଯୁକ୍ତି

ବିଦ୍ୟାର ପ୍ରସ୍ତୁତି ସ୍ତର ହାସଲ କରିଛି। ଆଇଆଇଟି ପରିସର ଏବଂ ନିକଟବର୍ତ୍ତୀ ଅଞ୍ଚଳରୁ ପାନୀୟଜଳ ନମୁନା ସଂଗ୍ରହ କରି ପରୀକ୍ଷଣ କରାଯାଇଛି।

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

Media/Publication	The Pragativadi		
Date	10th June, 2026	Language	English
Headline	IIT Bhubaneswar Launches ArsenSafe for Safer Drinking Water		
Link	https://pragativadi.com/iit-bhubaneswar-launches-arsensafe-for-safer-drinking-water/		

Researchers at IIT Bhubaneswar have unveiled a breakthrough in arsenic detection technology with the launch of a portable device named *ArsenSafe*.

Led by Dr Sayan Dey and his team from the Sensors and Spectroscopy Research Group, School of Electrical and Computer Sciences, the innovation addresses one of India's pressing public health challenges—arsenic contamination in drinking water. The device, developed through Nano Semic Pvt. Ltd., a startup incubated at IIT Bhubaneswar, offers rapid, cost-effective, and on-site testing.

ArsenSafe uses a reduced graphene oxide (rGO)-based sensing mechanism that enables accurate detection of arsenic without laboratory infrastructure. Its compact design ensures easy operation with minimal training, making it suitable for government agencies, public health departments, environmental monitoring organisations, water treatment providers, NGOs, industries, and even individual households.

The prototype has achieved a high Technology Readiness Level and has already been tested on water samples from the IIT campus and nearby areas. Researchers emphasise that the device complies with World Health Organisation safety recommendations, ensuring reliable results for community health.

In addition, the team's article in *Environmental Science: Nano*, published by the Royal Society of Chemistry, highlights the advanced microsensor technology. The Editorial Board selected the work for its special themed collection on "Nanosensing," recognising its global significance.

By blending nanotechnology with machine learning, the researchers have created a solution that strengthens arsenic detection technology and contributes to safer drinking water. The recognition from the Royal Society of Chemistry underscores IIT Bhubaneswar's growing role in nanotechnology-driven environmental monitoring and its commitment to solving critical societal challenges.

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

Media/Publication	The MSN		
Date	10th June, 2026	Language	English
Headline	IIT Bhubaneswar creates portable device for arsenic testing in water		
Link	https://www.msn.com/en-in/money/news/iit-bhubaneswar-creates-portable-device-for-arsenic-testing-in-water/ar-AA25iSud		

Bhubaneswar, Jun 10 (PTI): Researchers at IIT Bhubaneswar have developed a portable device for rapid detection of arsenic in drinking water, offering a low-cost and field-deployable solution to address a major public health concern, officials said on Wednesday.

The research was carried out by a team from the Sensors and Spectroscopy Research Group of the School of Electrical and Computer Sciences (SECS), led by Sayan Dey, focusing on affordable, sensitive and field-deployable technologies for arsenic detection.

According to a statement by the institute, the team developed a compact handheld arsenic detection device, named 'ArsenSafe', through a startup incubated at the Research and Entrepreneurship Park of IIT Bhubaneswar.

Designed for rapid, cost-effective and on-site testing, the device enables accurate detection of arsenic contamination without the need for laboratory infrastructure or chemical reagents, making water-quality assessment faster and more accessible, it said.

"ArsenSafe uses an rGO-based sensing system and is designed for easy operation with minimal setup and training requirements," the statement said.

The device can be deployed by government agencies, public health departments, environmental monitoring organisations, water treatment providers, industries, non-governmental organisations and individual consumers, it added.

The institute said the current prototype has achieved a high Technology Readiness Level (TRL) and has been successfully tested on water samples collected from the IIT Bhubaneswar campus and adjoining areas.

Arsenic contamination in groundwater remains a major challenge in several parts of India and across the world, making the development of reliable field-testing technologies critical for public health and water-quality monitoring.

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

Media/Publication	The OTV		
Date	10th June, 2026	Language	English
Headline	IIT Bhubaneswar researchers develop portable device to detect Arsenic contamination in water		
Link	https://odishatv.in/odisha/iit-bhubaneswar-researchers-develop-portable-device-to-detect-arsenic-contamination-in-water-12024571		

A research team at the Indian Institute of Technology (IIT) Bhubaneswar engineered a portable, handheld device capable of rapidly and accurately identifying arsenic contamination in drinking water.

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

Media/Publication	The Print		
Date	10th June, 2026	Language	Hindi
Headline	IIT Bhubaneswar has developed a device for the rapid detection of arsenic in water.		
Link	https://hindi.theprint.in/india/iit-bhubaneswar-develops-device-to-rapidly-detect-arsenic-in-water/984469/		

भुवनेश्वर, 10 जून (भाषा) भारतीय प्रौद्योगिकी संस्थान, भुवनेश्वर के शोधकर्ताओं ने पेयजल में आर्सेनिक का शीघ्रता से पता लगाने के लिए एक हल्का और छोटा उपकरण विकसित किया है। अधिकारियों ने बुधवार को यह जानकारी दी।

यह उपकरण सार्वजनिक स्वास्थ्य से जुड़ी एक बड़ी समस्या को हल करने के लिए कम लागत वाला और आसानी से कहीं भी इस्तेमाल किया जा सकने वाला समाधान साबित होगा।

यह अनुसंधान आईआईटी भुवनेश्वर के 'स्कूल ऑफ इलेक्ट्रिकल एंड कंप्यूटर साइंसेज' (एसईसीएस) के 'सेंसर और स्पेक्ट्रोस्कोपी रिसर्च ग्रुप' की एक टीम ने किया, जिसकी अगुवाई सायन डे ने की।

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

Media/Publication	The Business Standard		
Date	11th June, 2026	Language	English
Headline	IIT-Bhubaneswar's new device set to transform water quality monitoring		
Link	https://www.business-standard.com/india-news/iit-bhubaneswar-develops-portable-device-for-arsenic-detection-in-water-126061100531_1.html		

Researchers at the Indian Institute of Technology (IIT) Bhubaneswar have developed an innovative technology that can rapidly identify arsenic contamination in water sources without the need for laboratory infrastructure, helping ensure arsenic-free drinking water.

The presence of arsenic in water is extremely dangerous as it is a highly toxic, tasteless and odourless metalloid that causes arsenicosis, a chronic and debilitating condition that can lead to severe internal diseases and fatal cancers.

The Sensors and Spectroscopy Research Group of the School of Electrical and Computer Sciences (SECS) at IIT Bhubaneswar has developed an affordable, highly sensitive and field-deployable technology to detect arsenic contamination, a major public health challenge affecting millions of people in India and several other countries.

As part of efforts to translate laboratory research into practical solutions, the researchers have manufactured a compact handheld arsenic detection device, "ArsenSafe", with the help of Nano Semic Pvt Ltd, a startup incubated at the Research and Entrepreneurship Park of IIT Bhubaneswar. The startup is led by Sayan Dey and Akshay K, both faculty members of the institute.

Designed for rapid, cost-effective and on-site water quality assessment, ArsenSafe eliminates the need for sophisticated laboratory facilities and chemical-based testing procedures. The portable device enables accurate detection of arsenic contamination in drinking water, making water testing faster, simpler and more accessible for a wide range of users.

The technology employs a reduced graphene oxide (rGO)-based sensing platform and has been developed for easy operation with minimal training and setup requirements.

Dey said the device can be deployed by government agencies, public health departments, environmental monitoring organisations, water treatment companies, industries, non-governmental organisations and even individual consumers seeking to assess the safety of drinking water sources.

"The prototype has already achieved a high Technology Readiness Level (TRL) and has undergone successful testing using water samples collected from the IIT Bhubaneswar campus and surrounding areas," he said.

The development complements the team's research in nanotechnology-enabled sensing systems.

In a recent study published in the journal Environmental Science: Nano of the Royal Society of Chemistry (RSC), the research team comprising Arijit Pattra, Bathula Sathwik and Himanshu P Padole, along with Dey, reported the development of an advanced microsensor based on reduced graphene oxide and its derivatives for detecting extremely low concentrations of arsenic in drinking water.

The sensor has demonstrated the capability to identify arsenic levels that comply with the safety standards recommended by the World Health Organisation (WHO).

"It is a convergence of nanotechnology and machine-learning techniques to enhance the sensitivity, reliability and efficiency of water quality monitoring systems," said Pattra, one of the researchers.

According to IIT officials, the research has received international recognition, with the editorial board of Environmental Science: Nano inviting the article to be featured in its special themed collection on "Nanosensing". The selection underscores the scientific importance and potential real-world impact of the technology, they said.

Arsenic contamination remains one of the most serious water-quality concerns globally, particularly in regions dependent on groundwater sources. Long-term exposure to arsenic-contaminated water can lead to severe health problems, including cancers, cardiovascular diseases and neurological disorders.

Technologies such as ArsenSafe could play a crucial role in early detection and prevention efforts, especially in rural and resource-constrained areas where laboratory testing facilities are often unavailable," Dey added.

Continuous monitoring of arsenic contamination in drinking water is crucial because inorganic arsenic, As(III), poses serious risks to human health.

Existing graphene-based sensors used for detecting heavy metals in water generally use silicon dioxide (SiO_2) or hafnium dioxide (HfO_2) as dielectric materials, while graphene or reduced graphene oxide (rGO) serves as the sensing layer.

Researchers at IIT Bhubaneswar have developed a novel liquid-gated reduced graphene oxide field-effect transistor (rGO-FET) sensor that uses semiconducting rGO along with a graphene oxide (GO) dielectric layer. The device can selectively detect extremely low concentrations of arsenic in drinking water.

The sensor demonstrated outstanding performance, registering a maximum response of 500 per cent when exposed to 40 parts per million (ppm) of arsenic. It also showed rapid detection and recovery capabilities, with response and recovery times of just 17.4 seconds and 11.76 seconds, respectively.

One of the most significant achievements of the study is the sensor's ability to detect arsenic at concentrations far below prescribed drinking-water safety limits. The device recorded a limit of detection of just 0.720 parts per billion (ppb) and a limit of quantification of 2.40 ppb at room temperature, making it highly sensitive to trace amounts of arsenic.

The sensor also exhibited excellent selectivity, accurately identifying arsenic even in the presence of other metal ions found in water. It remained reusable for up to 70 days while maintaining an accuracy of 98.4 per cent, with only a 2.2 per cent variation in performance over time.

The researchers also addressed interference from nickel (Ni II) ions by using a linear regression-based machine-learning algorithm to improve arsenic measurement in real-world conditions where multiple contaminants may be present. The model achieved a high correlation score (R^2) of 0.9732, enhancing the sensor's quantification capability in mixed-ion environments.

An adsorption-based model developed by the team to explain how the sensor detects arsenic and how the device functions delivered promising outcomes.

When tested on actual tap water and packaged drinking water samples, the sensor, combined with the optimised algorithm, delivered an accuracy of nearly 98 per cent.

The researchers said the newly developed rGO-FET sensor outperformed conventional reduced graphene oxide-based arsenic sensors in terms of sensitivity, selectivity, speed and long-term stability. The technology has the potential to provide a reliable and cost-effective solution for real-time monitoring of arsenic contamination in drinking water.

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

Media/Publication	The Odisha Haat		
Date	10th June, 2026	Language	English
Headline	IIT Bhubaneswar Researchers advance Arsenic Detection Technology for Safer Drinking Water		
Link	https://odishahaat.com/iit-bhubaneswar-researchers-advance-arsenic-detection-technology-for-safer-drinking-water/		

Bhubaneswar, 10th June 2026: Researchers from the Sensors and Spectroscopy Research Group, School of Electrical and Computer Sciences (SECS), Indian Institute of Technology (IIT) Bhubaneswar, led by Dr. Sayan Dey, have made significant advances in arsenic detection technologies aimed at improving water quality monitoring and public health. The research focuses on developing affordable, sensitive, and field-deployable solutions for detecting arsenic contamination in drinking water, which remains a major concern in many parts of India and the world.

Building on their scientific research, the team has developed a compact, portable and hand-held arsenic detection device named "ArsenSafe" through Nano Semic Pvt. Ltd., a startup incubated at the Research and Entrepreneurship Park, IIT Bhubaneswar, led by Dr. Sayan Dey and Dr. Akshay K., faculty members of the Institute. Designed for rapid, cost-effective and on-site testing, ArsenSafe enables accurate arsenic detection without the need for laboratory infrastructure and chemicals, making water-quality assessment faster and more accessible. The handheld device uses an rGO-based sensing device and is designed for easy operation with minimal setup and training. Government agencies, public health departments, environmental monitoring organisations, water treatment providers, industries, NGOs and even individual consumers can deploy it. The current prototype has achieved a sufficiently high Technology Readiness Level (TRL) and has been tested on the water sample from the IIT campus and adjacent areas.

In a recent article published in 'Environmental Science: Nano' of the Royal Society of Chemistry (RSC), the team comprising Dr. Sayan Dey, Arijit Pattra, Bathula Sathwik and Dr. Himanshu P. Padole, presented an advanced micro sensor based on reduced graphene oxide (rGO) and its derivatives to detect extremely low levels of arsenic in consumable water complying with the World Health Organization safety recommendations. It demonstrated a significant contribution towards improving human health and sanitation by carefully blending nanotechnology and machine learning. The Editorial Board of 'Environmental Science: Nano' has invited the article to be featured in its special themed collection on "Nanosensing," recognising the significance of the work.

The recognition from the Royal Society of Chemistry and the development of ArsenSafe together highlight IIT Bhubaneswar's growing contribution to nanotechnology-driven environmental monitoring and its efforts to address critical societal challenges through research and innovation.

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

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भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

Media/Publication	The Prajukti Odisha		
Date	10th June, 2026	Language	Odia
Headline	IIT Bhubaneswar researchers develop advanced arsenic detection technology for safe drinking water		
Link	https://prajuktiodisha.com/iit-bhubaneswar-researchers-advance-arsenic-detection-technology-for-safer-drinking-water/		

ଭୁବନେଶ୍ୱର, ୧୦ ଜୁନ୍ ୨୦୨୬: ଡକ୍ଟର ସାୟନ ଦେଙ୍କ ନେତୃତ୍ୱରେ ଭାରତୀୟ ପ୍ରଯୁକ୍ତି ପ୍ରତିଷ୍ଠାନ (ଆଇଆଇଟି) ଭୁବନେଶ୍ୱରର ସ୍କୁଲ୍ ଅଫ୍ ଇଲେକ୍ଟ୍ରିକାଲ୍ ଆଣ୍ଡ୍ କମ୍ପ୍ୟୁଟର ସାଇନ୍ସ (SECS)ର ସେନ୍ସର୍ସ ଆଣ୍ଡ୍ ସ୍ୱେକ୍ଟ୍ରୋସ୍କୋପି ରିସର୍ଚ୍ଚ ଗ୍ରୁପ୍ ର ଗବେଷକମାନେ ଜଳ ଗୁଣବତ୍ତା ମନିଟରିଂ ଏବଂ ଜନସ୍ୱାସ୍ଥ୍ୟକୁ ଉନ୍ନତ କରିବା ପାଇଁ ଆର୍ସେନିକ୍ ଚିହ୍ନଟ ପ୍ରଯୁକ୍ତିବିଦ୍ୟାରେ ଗୁରୁତ୍ୱପୂର୍ଣ୍ଣ ଅଗ୍ରଗତି କରିଛନ୍ତି। ଏହି ଗବେଷଣା ପାନୀୟ ଜଳରେ ଆର୍ସେନିକ୍ ପ୍ରଦୂଷଣ ଚିହ୍ନଟ ପାଇଁ ସୁଲଭ, ସମ୍ବେଦନଶୀଳ ଏବଂ କ୍ଷେତ୍ର-ନିୟୋଜନଯୋଗ୍ୟ ସମାଧାନ ବିକାଶ ଉପରେ ଧ୍ୟାନ କେନ୍ଦ୍ରିତ କରୁଛି।

ସେମାନଙ୍କର ବୈଜ୍ଞାନିକ ଗବେଷଣା ଉପରେ ଆଧାର କରି, ଦଳଟି ନାନୋ ସେମିକ୍ ପ୍ରାଇଭେଟ୍ ଲିମିଟେଡ୍ ମାଧ୍ୟମରେ "ଆର୍ସେନସେଫ୍" ନାମକ ଏକ କମ୍ପାକ୍ଟ, ପୋର୍ଟେବଲ୍ ଏବଂ ହାତରେ ଧରି ରଖାଯାଇଥିବା ଆର୍ସେନିକ୍ ଚିହ୍ନଟ ଡିଭାଇସ୍ ବିକଶିତ କରିଛି, ଯାହା ଏକ ଷ୍ଟାର୍ଟଅପ୍, ଯାହା ଆଇଆଇଟି ଭୁବନେଶ୍ୱରର ଗବେଷଣା ଏବଂ ଉଦ୍ୟୋଗୀତା ପାର୍କରେ ଇନକ୍ୟୁବେଟେଡ୍ ହୋଇଛି, ଏବଂ ପ୍ରତିଷ୍ଠାନର ଅଧ୍ୟାପକ ଡକ୍ଟର ସୟନ ଡେ ଏବଂ ଡକ୍ଟର ଅକ୍ଷୟ କେ.ଙ୍କ ନେତୃତ୍ୱରେ ଆସିଛି। ଦ୍ରୁତ, କମ ଖର୍ଚ୍ଚ ଏବଂ ସ୍ଥାନରେ ପରୀକ୍ଷଣ ପାଇଁ ଡିଜାଇନ୍ କରାଯାଇଥିବା, ଆର୍ସେନସେଫ୍ ପ୍ରୟୋଗଶାଳା ଭିତ୍ତିଭୂମି ଏବଂ ରାସାୟନିକ ଆବଶ୍ୟକତା ବିନା ସଠିକ୍ ଆର୍ସେନିକ୍ ଚିହ୍ନଟକୁ ସକ୍ଷମ କରିଥାଏ, ଯାହା ଜଳ-ଗୁଣବତ୍ତା ମୂଲ୍ୟାଙ୍କନକୁ

ଦ୍ରୁତ ଏବଂ ଅଧିକ ସୁଲଭ କରିଥାଏ। ହ୍ୟାଣ୍ଡହେଲ୍ଡ ଡିଭାଇସ୍ ଏକ ଆରଜିଓ-ଆଧାରିତ ସେନ୍ସିଂ ଡିଭାଇସ୍ ବ୍ୟବହାର କରେ ଏବଂ ସର୍ବନିମ୍ନ ସେଟଅପ୍ ଏବଂ ତାଲିମ ସହିତ ସହଜ କାର୍ଯ୍ୟ ପାଇଁ ଡିଜାଇନ୍ କରାଯାଇଛି। ସରକାରୀ ଏଜେନ୍ସି, ଜନସ୍ୱାସ୍ଥ୍ୟ ବିଭାଗ, ପରିବେଶଗତ ପର୍ଯ୍ୟବେକ୍ଷଣ ସଂଗଠନ, ଜଳ ଚିକିତ୍ସା ପ୍ରଦାନକାରୀ, ଶିଳ୍ପ, ସ୍ୱେଚ୍ଛାସେବୀ ଓ ବେସରକାରୀ ଅନୁଷ୍ଠାନ ଏବଂ ଏପରିକି ବ୍ୟକ୍ତିଗତ ଗ୍ରାହକ ଏହାକୁ ନିୟୋଜିତ କରିପାରିବେ। ବର୍ତ୍ତମାନର ପ୍ରୋଟୋଟାଇପ୍ ଯଥେଷ୍ଟ ଉଚ୍ଚ ପ୍ରଯୁକ୍ତିବିଦ୍ୟା ପ୍ରସ୍ତୁତି ସ୍ତର (TRL) ହାସଲ କରିଛି ଏବଂ ଆଇଆଇଟି କ୍ୟାମ୍ପସ୍ ଏବଂ ନିକଟବର୍ତ୍ତୀ ଅଞ୍ଚଳରୁ ଜଳ ନମୁନାକୁ ନେଇ ପରୀକ୍ଷିତ ହୋଇଛି।

ରୟାଲ୍ ସୋସାଇଟି ଅଫ୍ କେମେଷ୍ଟ୍ରି (RSC)ର 'ପରିବେଶ ବିଜ୍ଞାନ: ନାନୋ'ରେ ପ୍ରକାଶିତ ଏକ ସମ୍ପ୍ରତିକ ପ୍ରବନ୍ଧରେ, ଡକ୍ଟର ସାୟନ ଦେ, ଅରିଜିତ ପାତ୍ର, ବାଥୁଲା ସାତ୍ୱିକ ଏବଂ ଡକ୍ଟର ହିମାଂଶୁ ପି. ପାଡୋଲେଙ୍କୁ ନେଇ ଗଠିତ ଦଳ ବିଶ୍ୱ ସ୍ୱାସ୍ଥ୍ୟ ସଂଗଠନ ସୁରକ୍ଷା ସୁପାରିଶଗୁଡ଼ିକ ପାଳନ କରି ବ୍ୟବହାରଯୋଗ୍ୟ ପାଣିରେ ଆର୍ସେନିକ୍ ର ଅତ୍ୟନ୍ତ ନିମ୍ନ ସ୍ତର ଚିହ୍ନଟ କରିବା ପାଇଁ ହ୍ରାସିତ ଗ୍ରାଫିନ୍ ଅକ୍ସାଇଡ୍ (rGO) ଏବଂ ଏହାର ଡେରିଭେଟିଭ୍ସ ଉପରେ ଆଧାରିତ ଏକ ଉନ୍ନତ ମାଇକ୍ରୋ ସେନ୍ସର ଉପସ୍ଥାପନ କରିଛନ୍ତି। ଏହା ନାନୋଟେକ୍ନୋଲୋଜି ଏବଂ ମେସିନ୍ ଲର୍ଣ୍ଣିଂକୁ ଯତ୍ନର ସହିତ ମିଶ୍ରଣ କରି ମାନବ ସ୍ୱାସ୍ଥ୍ୟ ଏବଂ ପରିମଳ ଉନ୍ନତି ଦିଗରେ ଏକ ଗୁରୁତ୍ୱପୂର୍ଣ୍ଣ ଅବଦାନ ପ୍ରଦର୍ଶନ କରିଛି। 'ପରିବେଶ ବିଜ୍ଞାନ: ନାନୋ'ର ସମ୍ପାଦକୀୟ ବୋର୍ଡ କାର୍ଯ୍ୟର ଗୁରୁତ୍ୱକୁ ସ୍ୱୀକାର କରି "ନାନୋସେନ୍ସିଂ" ଉପରେ ଏହାର ସ୍ୱତନ୍ତ୍ର ବିଷୟବସ୍ତୁ ସଂଗ୍ରହରେ ପ୍ରଦର୍ଶିତ ହେବାକୁ ପ୍ରବନ୍ଧକୁ ଆମନ୍ତ୍ରଣ କରିଛି।

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

Media/Publication	The Yuva Samay		
Date	10th June, 2026	Language	Odia
Headline	IIT Bhubaneswar researchers develop advanced arsenic detection technology for safe drinking water		
Link	https://yuvasamay.com/iit-bhubaneswar-researchers-advance-arsenic-detection-technology-for-safer-drinking-water/		

ଭୁବନେଶ୍ୱର, ୧୦ ଜୁନ୍ ୨୦୨୬: ଡକ୍ଟର ସାୟନ ଦେଙ୍କ ନେତୃତ୍ୱରେ ଭାରତୀୟ ପ୍ରଯୁକ୍ତି ପ୍ରତିଷ୍ଠାନ (ଆଇଆଇଟି) ଭୁବନେଶ୍ୱରର ସ୍କୁଲ୍ ଅଫ୍ ଇଲେକ୍ଟ୍ରିକାଲ୍ ଆଣ୍ଡ୍ କମ୍ପ୍ୟୁଟର ସାଇନ୍ସ (SECS)ର ସେନ୍ସର୍ସ ଆଣ୍ଡ୍ ସ୍ପେକ୍ଟ୍ରୋସ୍କୋପି ରିସର୍ଚ୍ଚ ଗ୍ରୁପ୍ ର ଗବେଷକମାନେ ଜଳ ଗୁଣବତ୍ତା ମନିଟରିଂ ଏବଂ ଜନସ୍ୱାସ୍ଥ୍ୟକୁ ଉନ୍ନତ କରିବା ପାଇଁ ଆର୍ସେନିକ୍ ଚିହ୍ନଟ ପ୍ରଯୁକ୍ତିବିଦ୍ୟାରେ ଗୁରୁତ୍ୱପୂର୍ଣ୍ଣ ଅଗ୍ରଗତି କରିଛନ୍ତି। ଏହି ଗବେଷଣା ପାନୀୟ ଜଳରେ ଆର୍ସେନିକ୍ ପ୍ରଦୂଷଣ ଚିହ୍ନଟ ପାଇଁ ସୁଲଭ, ସମ୍ବେଦନଶୀଳ ଏବଂ କ୍ଷେତ୍ର-ନିୟୋଜନଯୋଗ୍ୟ ସମାଧାନ ବିକାଶ ଉପରେ ଧ୍ୟାନ କେନ୍ଦ୍ରିତ କରୁଛି।

ସେମାନଙ୍କର ବୈଜ୍ଞାନିକ ଗବେଷଣା ଉପରେ ଆଧାର କରି, ଦଳଟି ନାନୋ ସେମିକ୍ ପ୍ରାଇଭେଟ୍ ଲିମିଟେଡ୍ ମାଧ୍ୟମରେ "ଆର୍ସେନସେଫ୍" ନାମକ ଏକ କମ୍ପାକ୍ଟ, ପୋର୍ଟେବଲ୍ ଏବଂ ହାତରେ ଧରି ରଖାଯାଇଥିବା ଆର୍ସେନିକ୍ ଚିହ୍ନଟ ଡିଭାଇସ୍ ବିକଶିତ କରିଛି, ଯାହା ଏକ ଷ୍ଟାର୍ଟଅପ୍, ଯାହା ଆଇଆଇଟି ଭୁବନେଶ୍ୱରର ଗବେଷଣା ଏବଂ ଉଦ୍ୟୋଗୀତା ପାର୍କରେ ଇନକ୍ୟୁବେଟେଡ୍ ହୋଇଛି, ଏବଂ ପ୍ରତିଷ୍ଠାନର ଅଧ୍ୟାପକ ଡକ୍ଟର ସୟନ ଡେ ଏବଂ ଡକ୍ଟର ଅକ୍ଷୟ କେ.ଙ୍କ ନେତୃତ୍ୱରେ ଆସିଛି। ଦ୍ରୁତ, କମ ଖର୍ଚ୍ଚ ଏବଂ ସ୍ଥାନରେ ପରୀକ୍ଷଣ ପାଇଁ ଡିଜାଇନ୍ କରାଯାଇଥିବା, ଆର୍ସେନସେଫ୍ ପ୍ରୟୋଗଶାଳା ଭିତ୍ତିଭୂମି ଏବଂ ରାସାୟନିକ ଆବଶ୍ୟକତା ବିନା ସଠିକ୍ ଆର୍ସେନିକ୍ ଚିହ୍ନଟକୁ ସକ୍ଷମ କରିଥାଏ, ଯାହା ଜଳ-ଗୁଣବତ୍ତା ମୂଲ୍ୟାଙ୍କନକୁ ଦ୍ରୁତ ଏବଂ ଅଧିକ ସୁଲଭ କରିଥାଏ। ହ୍ୟାଣ୍ଡହେଲ୍ଡ ଡିଭାଇସ୍ ଏକ ଆରଜିଓ-ଆଧାରିତ ସେନ୍ସିଂ ଡିଭାଇସ୍ ବ୍ୟବହାର କରେ ଏବଂ ସର୍ବନିମ୍ନ ସେଟଅପ୍ ଏବଂ ତାଲିମ ସହିତ ସହଜ କାର୍ଯ୍ୟ ପାଇଁ ଡିଜାଇନ୍ କରାଯାଇଛି। ସରକାରୀ ଏଜେନ୍ସି, ଜନସ୍ୱାସ୍ଥ୍ୟ ବିଭାଗ, ପରିବେଶଗତ ପର୍ଯ୍ୟବେକ୍ଷଣ ସଂଗଠନ, ଜଳ ଚିକିତ୍ସା ପ୍ରଦାନକାରୀ, ଶିଳ୍ପ, ସ୍ୱେଚ୍ଛାସେବୀ ଓ ବେସରକାରୀ ଅନୁଷ୍ଠାନ ଏବଂ ଏପରିକି ବ୍ୟକ୍ତିଗତ ଗ୍ରାହକ ଏହାକୁ ନିୟୋଜିତ କରିପାରିବେ। ବର୍ତ୍ତମାନର ପ୍ରୋଟୋଟାଇପ୍ ଯଥେଷ୍ଟ ଉଚ୍ଚ ପ୍ରଯୁକ୍ତିବିଦ୍ୟା ପ୍ରସ୍ତୁତି ସ୍ତର (TRL) ହାସଲ କରିଛି ଏବଂ ଆଇଆଇଟି କ୍ୟାମ୍ପସ୍ ଏବଂ ନିକଟବର୍ତ୍ତୀ ଅଞ୍ଚଳରୁ ଜଳ ନମୁନାକୁ ନେଇ ପରୀକ୍ଷିତ ହୋଇଛି।

ରୟାଲ୍ ସୋସାଇଟି ଅଫ୍ କେମେଷ୍ଟ୍ରି (RSC)ର 'ପରିବେଶ ବିଜ୍ଞାନ: ନାନୋ'ରେ ପ୍ରକାଶିତ ଏକ ସମ୍ପ୍ରତିକ ପ୍ରବନ୍ଧରେ, ଡକ୍ଟର ସାୟନ ଦେ, ଅରିଜିତ ପାତ୍ର, ବାଥୁଲା ସାତ୍ୱିକ ଏବଂ ଡକ୍ଟର ହିମାଂଶୁ ପି. ପାଡୋଲେଙ୍କୁ ନେଇ ଗଠିତ ଦଳ ବିଶ୍ୱ ସ୍ୱାସ୍ଥ୍ୟ ସଂଗଠନ ସୁରକ୍ଷା ସୁପାରିଶଗୁଡ଼ିକ ପାଳନ କରି ବ୍ୟବହାରଯୋଗ୍ୟ ପାଣିରେ ଆର୍ସେନିକ୍ ର ଅତ୍ୟନ୍ତ ନିମ୍ନ ସ୍ତର ଚିହ୍ନଟ କରିବା ପାଇଁ ହ୍ରାସିତ ଗ୍ରାଫିନ୍ ଅକ୍ସାଇଡ୍ (rGO) ଏବଂ ଏହାର ଡେରିଭେଟିଭ୍ସ ଉପରେ ଆଧାରିତ ଏକ ଉନ୍ନତ ମାଇକ୍ରୋ ସେନ୍ସର ଉପସ୍ଥାପନ କରିଛନ୍ତି। ଏହା ନାନୋଟେକ୍ନୋଲୋଜି ଏବଂ ମେସିନ୍ ଲର୍ଣ୍ଣିଂକୁ ଯତ୍ନର ସହିତ ମିଶ୍ରଣ କରି ମାନବ ସ୍ୱାସ୍ଥ୍ୟ ଏବଂ ପରିମଳ ଉନ୍ନତି ଦିଗରେ ଏକ ଗୁରୁତ୍ୱପୂର୍ଣ୍ଣ ଅବଦାନ ପ୍ରଦର୍ଶନ କରିଛି। 'ପରିବେଶ ବିଜ୍ଞାନ: ନାନୋ'ର ସମ୍ପାଦକୀୟ ବୋର୍ଡ କାର୍ଯ୍ୟର ଗୁରୁତ୍ୱକୁ ସ୍ୱୀକାର କରି "ନାନୋସେନ୍ସିଂ" ଉପରେ ଏହାର ସ୍ୱତନ୍ତ୍ର ବିଷୟବସ୍ତୁ ସଂଗ୍ରହରେ ପ୍ରଦର୍ଶିତ ହେବାକୁ ପ୍ରବନ୍ଧକୁ ଆମନ୍ତ୍ରଣ କରିଛି।

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

Media/Publication	Crackit Today Affairs		
Date	13th June, 2026	Language	English
Headline	IIT Bhubaneswar Develops ArsenSafe Device for Rapid Water Testing		
Link	https://crackittoday.com/current-affairs/iit-bhubaneswar-develops-arsensafe-device-for-rapid-water-testing/		

The Indian Institute of Technology (IIT) Bhubaneswar have developed the "ArsenSafe," a portable device which is capable of detecting the arsenic contamination in drinking water without requiring any laboratory facilities.

- This innovation offers the rapid, affordable and highly sensitive solution to one of the world's most serious public health challenges.
- It is developed by the Sensors and Spectroscopy Research Group of IIT Bhubaneswar in collaboration with the startup incubated at the institute, the technology has the potential to improve the access to safe drinking water and specially in rural and resource-constrained regions.
- ArsenSafe is the compact handheld device which is designed to detect the arsenic contamination directly at the source. Unlike the conventional testing methods that require sophisticated laboratories and chemical-based procedures and this device can be used on-site with minimal training.
- The technology has been developed with the support from Nano Semic Pvt Ltd, a startup incubated at the Research and Entrepreneurship Park of IIT Bhubaneswar.
- The startup is led by the faculty members Sayan Dey and Akshay K.
- The portable design of device makes the water testing faster, easier and more accessible for the government agencies, environmental organizations, industries, NGOs and individual users.

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

Media/Publication	GK Today		
Date	13th June, 2026	Language	English
Headline	Which institute has developed ArsenSafe, a portable handheld device for rapid arsenic detection in drinking water?		
Link	https://www.gktoday.in/question/which-institute-has-developed-arsensafe-a-portable-handheld-device-for		

Which institute has developed ArsenSafe, a portable handheld device for rapid arsenic detection in drinking water?
Answer: IIT Bhubaneswar

Notes: Researchers at Indian Institute of Technology Bhubaneswar have developed ArsenSafe, a portable handheld device for rapid arsenic detection in drinking water. ArsenSafe enables fast, cost-effective, on-site water testing. It uses an advanced Reduced Graphene Oxide (rGO)-based micro-sensor integrated with nanotechnology. The device can detect highly accurate arsenic concentrations in water.

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

Media/Publication	DoctHub		
Date	11th June, 2026	Language	English
Headline	IIT Bhubaneswar researchers develop portable device for accurate arsenic detection in water		
Link	https://news.docthub.com/iit-bhubaneswar-researchers-develop-portable-device-for-accurate-arsenic-detection-in-water-N1841		

Bhubaneswar: Researchers at Indian Institute of Technology (IIT) Bhubaneswar have developed a portable device that can rapidly and accurately detect arsenic contamination in drinking water, offering a potential solution to a major public health challenge.

The handheld device, named ArsenSafe, has been developed by Nano Semic, a startup led by faculty members Sayan Dey and Akshay K, and incubated at the Research and Entrepreneurship Park of IIT Bhubaneswar.

Dey, who heads the Sensors and Spectroscopy Research Group at the School of Electrical and Computer Sciences (SECS), says the team's research has focused on developing affordable, sensitive and field-deployable technologies for arsenic detection in drinking water.

The device uses a reduced graphene oxide (rGO)-based sensing system and is designed for easy operation with minimal training and set-up requirements, Dey says.

According to the researchers, the device can be used by govt agencies, public health departments, environmental monitoring organisations, water treatment providers, industries, non-governmental organisations and even individual consumers.

"The prototype has already achieved a high Technology Readiness Level (TRL) and been successfully tested on water samples collected from the IIT Bhubaneswar campus and nearby areas," Dey says. The TRL is a method for estimating the maturity of technologies during the acquisition phase of a programme.

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

Media/Publication	The Hindu		
Date	11th June, 2026	Language	English
Headline	IIT Bhubaneswar develops hand-held device to detect arsenic		
Link	https://www.thehindu.com/sci-tech/science/iit-bhubaneswar-develops-hand-held-device-to-detect-arsenic/article71089117.ece		

Indian Institute of Technology (IIT) Bhubaneswar has innovated a device to detect arsenic that would help improve water quality monitoring and public health.

Researchers from the Sensors and Spectroscopy Research Group, School of Electrical and Computer Sciences (SECS), IIT Bhubaneswar, led by Sayan Dey have made significant advances in arsenic detection technologies, said the institute in a press release on Thursday (June 11, 2026).

“The research focused on developing affordable, sensitive, and field-deployable solutions for detecting arsenic contamination in drinking water, which remains a major concern in many parts of India,” it said.

The team has developed a compact, portable and hand-held arsenic detection device named ‘ArsenSafe’ through Nano Semic Private Limited, a start-up incubated at the Research and Entrepreneurship Park, IIT Bhubaneswar.

ArsenSafe can accurately detect arsenic without the need for laboratory infrastructure and chemicals, making water-quality assessment faster and more accessible. Researchers said it was designed for rapid, cost-effective and on-site testing.

"Government agencies, public health departments, environmental monitoring organisations, water treatment providers, industries, NGOs and even individual consumers can deploy it," IIT Bhubaneswar said.

The current prototype has achieved a sufficiently high Technology Readiness Level (TRL) and has been tested on the water sample from the IIT campus and adjacent areas.

"The device demonstrated a significant contribution towards improving human health and sanitation by carefully blending nanotechnology and machine learning," said the institute.

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

Media/Publication	News Bytes		
Date	11th June, 2026	Language	English
Headline	IIT Bhubaneswar unveils ArsenSafe to detect arsenic in drinking water		
Link	https://www.newsbytesapp.com/news/science/iit-bhubaneswar-unveils-arsensafe-to-detect-arsenic-in-drinking-water/tldr		

IIT Bhubaneswar unveils ArsenSafe to detect arsenic in drinking water
TechnologyJun 11, 2026
IIT Bhubaneswar just rolled out ArsenSafe, a handy device that spots arsenic in drinking water (no lab needed).
Led by Sayan Dey's Sensors and Spectroscopy Research Group, the project tackles a big health issue affecting many parts of India.

The device has already proven its accuracy on campus and nearby samples.
ArsenSafe uses nanotech and machine learning
ArsenSafe is quick, affordable, and easy to use on-site.

Developed through Nano Semic Private Limited, a start-up incubated at the Research and Entrepreneurship Park, IIT Bhubaneswar, it uses nanotech and machine learning to make detection simple for anyone, from government teams to NGOs or regular folks.

It could seriously boost efforts to keep water safe and improve public health across the country.

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

Media/Publication	Drug Control Media Services		
Date	10th June, 2026	Language	English
Headline	News from DrugsControl Media Services: https://drugscontrol.org/news-detail.php?newsid=45139		
Link	https://drugscontrol.org/news-detail.php?newsid=45139		

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर
Indian Institute of Technology Bhubaneswar

Media/Publication	The Indian Express		
Date	11th June, 2026	Language	English
Headline	IIT Bhubaneswar researchers advance arsenic detection Technology for Safer Drinking Water		

IIT Bhubaneswar Researchers advance Arsenic Detection Technology for Safer Drinking Water

Researchers from the Sensors and Spectroscopy Research Group, School of Electrical and Computer Sciences (SECS), Indian Institute of Technology (IIT) Bhubaneswar, led by Dr. Sayan Dey, have made significant advances in arsenic detection technologies aimed at improving water quality monitoring and public health. The research focuses on developing affordable, sensitive, and field-deployable solutions for detecting arsenic contamination in drinking water, which remains a major concern in many parts of India and the world. Building on their scientific research, the team has developed a compact, portable and hand-held arsenic detection device named "ArsenSafe" through Nano Semic Pvt. Ltd., a startup incubated at the Research and Entrepreneurship Park, IIT Bhubaneswar, led by Dr. Sayan Dey and Dr. Akshay K., faculty members of the Institute. Designed for rapid, cost-effective and on-site testing, ArsenSafe enables accurate arsenic detection without the need for laboratory infrastructure and chemicals, making water-quality assessment faster and more accessible. The handheld device uses an rGO-based sensing device and is designed for easy operation with minimal setup and training.

Government agencies, public health departments, environmental monitoring organisations, water treatment providers, industries, NGOs and even individual consumers can deploy it. The current prototype has achieved a sufficiently high Technology Readiness Level (TRL) and has been tested on the water sample from the IIT campus and adjacent areas. In a recent article published in 'Environmental Science: Nano' of the Royal Society of Chemistry (RSC), the team comprising Dr. Sayan Dey, Arijit Pattra, Bathula Sathwik and Dr. Himanshu P. Padole, presented an advanced micro sensor based on reduced graphene oxide (rGO) and its derivatives to detect extremely low levels of arsenic in consumable water complying with the World Health Organization safety recommendations.