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THE HANS INDIA

Sun, 02 Apr, 2017
(Online)

Women strike a perfect work-life balance

Nellore: It was a proud day for women as 15 women scientists from ISRO and DRDO were felicitated at Swarna Bharat Trust Auditorium here on Saturday.

Speaking on the occasion, Union minister M Venkaiah Naidu said that women are dominating the scientific sector and said there is a wrong notion that men are academically superior to women in Mathematics, Science and Technology. But, he said, intelligence is gender-neutral and girls are entering science and technology, medicine much more than boys.

He quipped that men scientists can be absentminded, but women have no such luxury since they strike a perfect work-life balance. The women scientists who were felicitated include Dr. Tessy Thomas, Director, ISRO; Pramila, Project Director, DRDL; Shashikala Sinha, DRDO; Shwetha, DRDL; Mahaswetha Bhakshi, DRDO; K V Sujatha, DRDO; Sneha Rani, DRDO; Rama DRDL;

Latha Shanthi, Manager, Sriharikota; Jessey Verghese, Sriharikota; R Sree Vidya, Sriharikota; K S Lakshmi, Sriharikota; K R Madhavi, Sriharikota; Rani Surendran from Sriharikota. Union Minister for Social Justice and Empowerment T C Gehlot, Puducherry Governor Kiran Bedi, Chief of DRDO Dr. G Sateesh Reddy, AP health minister Dr. Kamineni Srinivas Rao and others also participated.

THE HINDU BusinessLine

Fri, 31 Mar, 2017
(Online)

BEL's research spend up 10% of revenue

By Amrita Nair-Ghaswalla

Defence electronics equipment maker files for over 12 patents

State-run defence company BEL's research and development spend has soared to an all-time high with 10 per cent of revenues going into research. BEL had spent 8.5 per cent of its revenues on R&D, last year.

Aiming to increase the level of indigenisation, the defence electronics equipment manufacturer has filed for over 12 patents.

To help maintain its pre-eminence in defence electronics, the company has many research and development (R&D) programmes in collaboration with Indian as well as foreign R&D institutes. In 2015-2016, the state enterprise spent around 704 crore in R&D, and has more than 1,000 crore worth projects lined up in R&D for FY-18.

"The aim is to increase the level of indigenisation," said a senior BEL official. "Our constant effort on indigenous development has helped us achieve 86 per cent of our turnover from indigenous products. Only 14 per cent of our revenue came from products manufactured through technology transfer from foreign OEMs," he added.

BEL has also launched collaborative R&D with private SME firms in the country. It has developed over 750 private vendors, a significant number from among MSMEs. More than 40 per cent of input materials are sourced from Indian private industries.

Apart from in-house efforts, BEL has close co-operation with the Defence Research and Development Organisation (DRDO) as well as other R&D agencies. The firm has also teamed up with state enterprise

Bharat Dynamics Ltd to supply sensors and command-and-control systems for the Indian Army's Akash missile programme.

BEL's upcoming Defence Systems Integration complex at Palasamudram in Ananthpur district of Andhra Pradesh is set to help the firm expand its missile systems business.

At the facility, BEL will carry out manufacturing and integration for ongoing and upcoming projects such as QRSAM (quick-reaction surface-to-air missile), and MRSAM (medium-range surface-to-air missile) developed by the DRDO.

"BEL is associating with the DRDO in the joint development of the indigenous QRSAM system and it is progressing well," said the official.

The QRSAM weapon system, currently under development, is an indigenous missile system, which will have canister launchers and is expected to be a highly mobile air defence system.

The official added that the company is in discussions with the DRDO for the joint development of the next-generation Akash Missile system. "This will have a new radar and seeker with better range as compared to the Akash Missile System inducted by the IAF and Army," added the official. The order for the next-generation Akash missile system is expected to be worth $1 billion.

The official said the Palasamudram facility "will be built in 3-4 phases as various projects mature, and the estimated investment will be about 800 crore over the next three-four years."

THE ECONOMIC TIMES
WWW.ECONOMICTIMES.COM

Mon, 03 Apr, 2017

Ahead of Modi Visit, India's First Missile Drones Ready in Israel

By Manu Pubby

Heron TP armed-drones will give India cross-border strike capability

India's first missilearmed drones that will give it the capability to carry out standoff cross-border strikes are ready in Israel, ahead of the first ever visit to the nation by an Indian prime minister.

The Heron TP-armed drones, capable of detecting, tracking and taking down targets with air to ground missiles, have been on the armed forces wish list for years, before the programme was fast tracked in September 2015, as reported by ET.

Prime Minister Narender Modi is heading for a historic visit to Israel in July and is expected to discuss and take forward the growing strategic partnership between the two nations. One of India's top weapons suppliers, Israel has been most enthusiastic on the `Make in India' initiative and is keen to shift its production lines in partnership with the Indian private sector.

Sources have told ET that 10 Heron TP-armed drones, which were under the procurement process since 2015, are now ready for delivery. The drones could be brought into service by India at the earliest but the final milestone payment is still pending. Israel had displayed the Heron TP drone at the AeroIndia show in Bengaluru in February.

As reported by ET on September 11, 2015, the defence ministry had quietly approved the purchase of 10 missile-armed drones from Israel for $400 million under directions from the highest levels of government. The armed forces had proposed buying the same armed drones in 2012. But that proposal did not get political backing in UPA-2. Similar to the Predator unmanned aerial vehicles (UAVs), the Heron TPs are capable of reconnaissance, combat and support roles, carrying a payload of air -to-ground missiles to take down targets deep in enemy territory.

The Indian Air Force also has a fleet of Harpy UAVs from Israel but these are not equipped with missiles--they are self-destructing systems primarily tasked with taking out enemy radar posi tions. India also operates a fleet of unarmed Heron and Searcher UAVs for surveillance and intelligence gathering. Armed drones will give India the option of taking out large terrorist camps or individual targets in hostile territory with minimal risk. India is also pursuing an indigenous drone programme--Rustom 2--that is being developed by the Defence Research and Development Organisation.

Business Standard

Mon, 03 Apr, 2017

Crucial defence ministry meeting today to look at strategic partner policy

By Ajai Shukla

SP policy aims to boost PM Narendra Modi's Make in India thrust by harnessing private industry

Defence Minister Arun Jaitley is looking to solve a problem that thwarted predecessor Manohar Parrikar throughout his 28 months in office.

On Monday, the defence ministry's apex procurement body, the Defence Acquisition Council (DAC), chaired by Jaitley, will try to arrive at an acceptable way of nominating "strategic partners" (SPs) — private companies, nominated by the defence ministry as chosen production agencies for defence equipment.

Private defence industry and companies hoping to enter this risky field are watching carefully to see whether the SP policy will corner defence production for a handful of big players, or leave space for others to share the profits. The SP policy aims to boost Prime Minister Narendra Modi's "Make in India" thrust by harnessing private industry to galvanise defence production and create manufacturing jobs. Pushing through the SP policy would fetch Jaitley kudos from Modi, and set him above Parrikar who failed to do so.

Under Parrikar, the ministry published its Defence Procurement Policy of 2016 (DPP-2016) with a blank space where Chapter VI — the SP policy — was meant to be.

However, persons who have briefed Jaitley on the challenges of the SP policy say he has, much like his senior bureaucrats, reservations over allowing private firms to benefit from being "nominated" for a defence contract, without competitive selection.

Jaitley's challenge in Monday's DAC meeting, say sources familiar with the internal discussions on the SP policy, will be to introduce an element of competition into the nomination of private companies as SPs.

The thought process on SPs traces its roots back to the Kelkar Committee, which, in 2005-06, suggested nominating a set of financially deep-pocketed, technologically capable private sector firms who would be titled Raksha Udyog Ratnas (RuRs). These RuRs could bid, on equal terms with the privileged defence public sector undertakings (DPSUs), for developing and building defence platforms for the military.

The RuR policy, however, was stillborn. Then defence minister, A K Antony, buckled under the pressure of DPSU unions who feared job losses as robust private sector firms muscled onto their turf.

In 2015, the National Democratic Alliance (NDA) government resurrected the notion of selecting private firms as preferred partners for big defence projects. The MoD-constituted Dhirendra Singh Committee (2014-15); and, subsequently, the V K Aatre Task Force (2015-16) recommended designating one private sector firm as the SP for each of seven technology areas — aircraft; helicopters; aero engines; submarines; warships; artillery guns, and armoured vehicles. It also recommended selecting two SPs each for three other technology segments — metallic material and alloys; non-metallic materials; and ammunition, including smart munitions.

But as Parrikar tried to push an SP policy through the ministry, it predictably stalled on renewed opposition from DPSUs, backed by Parrikar's own department that oversaw the DPSUs — the Department of Defence Production (DDP).

Additionally, bureaucrats in the Department of Defence (Finance), who like to assume a regulatory role, were apprehensive about the possibility of future allegations of bias in nominating SPs.

Opposition also came from medium, small and micro enterprises, which argued that only they would facilitate high-technology indigenisation, not the large private firms with manufacturing capability but no high-technology expertise.

These smaller companies were left out of SP contention by the Aatre committee's recommended eligibility criterion of at least Rs 4,000 crore in annual turnover.

There is broad pessimism about Jaitley being able to cut through this Gordian knot at the DAC on Monday. However, insiders believe he will try to introduce an element of competition in the nomination of SPs, which would enable price discovery and avoid allegations of arbitrariness and bias.

The solution being pushed, say ministry sources, is to appoint select firms along the lines of RuRs, who will be eligible not just for one field, like aircraft or submarines, but for multiple fields. With at least two chosen SPs competing with each other for each MoD contract, the competitive element would have been retained in the policy. Says a ministry insider: "I don't expect the new defence minister to make hasty decisions within a month of taking over, but there is strong pressure from the Prime Minister's Office. The 2019 elections are just two years away. The PMO wants to get going."

Challenges

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The Statesman
PEOPLE'S PARLIAMENT, ALWAYS IN SESSION

Mon, 03 Apr, 2017

India's quest for nuclear power

By Armin Rosencranz and Aditya Vora

To meet its energy requirement, India is currently looking at new locations to build up its nuclear power production. Nuclear power is currently India's 5th largest source of electricity after Coal (61 per cent), Natural Gas (7.6 per cent), Hydroelectric (14 per cent), other renewables (14 per cent) and Nuclear (3.5 per cent). India aims to increase the percentage of nuclear power production in the overall energy supply to 9 per cent by 2026.

It is part of India's plan to expand nuclear generation capacity to 63 gigawatts by 2032 from 6.8 gigawatts presently.

As of 2016, India has seven nuclear power plants, with an installed capacity of 6.80 GW and producing 34644.45 GWh of electricity. India is planning five more nuclear plants - in Jaitapur in Maharashtra, Kovvada in Andhra Pradesh, Chutka in Madhya Pradesh, Banswara in Rajasthan and Gorakhpur in Haryana. This is expected to generate an additional 4.3 GW of power. The new sites India is looking for are in addition to the already identified sites.

India has had issues about its nuclear energy sites in the past, such as the local protests surrounding the Kudankulam Nuclear Power Plant in Tamil Nadu. It has had to back out of a couple of sites due to these protests. Therefore, the objective of seeking new sites is to have them away from the sea (to prevent another Fukushima disaster) and in distant locations to prevent a huge public uproar. These new sites would supplement the existing list.

In anticipation of these new sites, the Modi Government has been busy signing Civil Nuclear Agreements for the purchase of uranium. In 2014, 2015 and in 2016, India signed agreements with Australia, the UK and Japan respectively for purchase of uranium for manufacturing nuclear power.

Speaking of public uproar, following the Fukushima nuclear disaster in 2011, there was a combined effort to block Indian nuclear projects. These protests gained popularity throughout the country. A couple of protests that have received significant traction in the media are against the French-partnered Jaitapur nuclear project in Maharashtra and the Russian-partnered Kudankulam project in Tamil Nadu. Other proposed power plants have also been halted due to protests. The former chairman of the Atomic Energy Commission of India said in a lecture said that the scheme for the Haripur Nuclear Power Plant in West Bengal has not completely been deleted though appropriate background work was to be a decisive factor in the future of the power plant. However, the lifeline of the power plant is still hanging more than three years after plans were halted.

There have been other such power plants as well, like the Mandla Nuclear Power Project in Madhya Pradesh. This was proposed by the Central Government in 1982. The power plant is located in the catchment area of the Bargi dam on the Narmada River. The compensation received by the local villagers is pennies compared to the prices of land in the area currently. Especially so, as a Hindustan Times report mentioned, a farmer with 20 acres who lost 17 acres for the dam construction now may lose the remaining three acres for the Nuclear Project.

India has been bent on exponentially increasing its energy production. It plans to expand its nuclear energy capacity tenfold. These plans however have been hampered due to delays in construction and suppliers' concern over the liability laws in India in case of a disaster. To solve the first problem, as mentioned, sites are being picked in places with low populations. As for the liability laws, the law allows for claims from the companies that are setting up the power plant. This has discouraged companies from General Electric to Toshiba from setting up plants.

Toshiba said that it would only set up six reactors in India if there is a change in the nuclear liability law. It cannot be expected to take up the risk of building the new nuclear plants, the company said, following a $6.3 billion write-down. In the US, the Price–Anderson Nuclear Industries Indemnity Act, first passed as early as 1957, restricts liability of nuclear power plant operators. The object of the Act is to partially compensate the plant operators against claims arising from nuclear incidents to ensure that compensation is provided to the public. The Act creates a no-fault insurance-type system with an industry-funded piggy bank of around $12.6 billion (as of 2011). Any claim above this amount is to be covered by the US government.

Nevertheless, India is proceeding with the domestic projects and looking for new sites. It has provisionally selected one site in the state of Haryana that is to be finalised in the next five years. Many Indian companies have shown an interest in collaborating in projects with the GOI monopoly company, the Nuclear Power Corporation of India.

Specifically, the Oil and Natural Gas Corporation of India's chairman has said that ONGC would be interested in exploring energy production opportunities in the nuclear sector. However, more attention needs to be paid to

siting nuclear power plants in places that will not lead to popular resistance. Additionally, if India wants to invite foreign companies, it will have to enact laws like the Price-Anderson Act to reduce the liability that these foreign companies face.

The writers are, respectively, Professor of Law and a student at the Jindal Global Law School, Sonipat.

hindustantimes.com

Mon, 03 Apr, 2017

Cop dies in grenade attack, four CRPF men among 12 hurt

Srinagar: A policeman was killed while 14 others injured after militants attacked a police party with grenade in old city's Nowhatta area.

The slain policeman has been identified as Shamim Ahmad from North Kashmir's Gurez area. While most of the injured are policemen of Jammu and Kashmir police, four CRPF jawans are also reportedly injured.

This is second attack in two days. On Saturday, militants attacked an army convoy in Srinagar's Bemina area, injuring three jawans.

Banned militant organisation Tehreeq-ul-Mujahideen has claimed the responsibility of the attack in a mailed press release to various news organisations. The organisation said its “special squad attacked CRPF” and claimed that “Kashmir police was not” their target.

According to police, the militants attacked a police party near Ganjbaksh Park in Nowhatta area of the city at around 7.00pm when the cops retracted after day-long law and order duty. Kashmir was observing shutdown for a day against Prime Minister Narendra Modi's state visit to inaugurate India’s largest road tunnel---the NashriChenani tunnel on the JammuSrinagar highway.

The injured soldiers were rushed to hospital for treatment.

Officer Killed In IED Blast Identified

An army officer, who was killed in Saturday’s improvised explosive device (IED) blast near the Line of Control (LoC) , was identified as Naib Subedar S Sanayaima Kom, a junior commissioned officer. Kom was critically wounded in the blast in Poonch on Saturday.

He was shifted to an army hospital in Poonch where he succumbed to his injuries.

A native of Manipur, he is survived by his wife and three children. Defence spokesman Lt Col Manish Mehta said a court of inquiry has been initiated.

“This area is known in the past for IEDs (planted) by Pakistan to inflict losses on Indian patrols. It seems that some rogue elements from Pakistan had entered our territory and planted the IED,” he said.

THE TIMES OF INDIA

Mon, 03 Apr, 2017

ISRO outsources job of satellite manufacturing to private firms

Private sector participation in key sectors

In a highly secure, clean room of the Indian Space Research Organisation (ISRO) here, a new jugalbandi is unfolding -teams from the private sector are working shoulder-to-shoulder with government engineers to create a new bird that will soar in the sky very soon.

The Indian space establishment has crossed a new threshold, engaging for the first time a private sector industry to make a full multicrore, heavy duty satellite.

Having been unable to keep pace with satellite fabrication, the ISRO has now roped in the private industry to bridge the gap.

A consortium led by Alpha Design Technologies, Bengaluru is tasked to make two full satellites for India's navigation system. After almost 150 missions and three decades of space faring, the Isro is on a mission like never before, handholding the private industry to make a full navigation satellite.

Towards that, a high-tech defence equipment supplier from Bengaluru, Alpha Design Technologies has been chosen as the first private industry tasked with making not one but two full satellites for the ISRO.

Colonel H S Shankar, the man who helped India get its first bulk supply of electronic voting machines (EVMs), is leading the consortium. Shankar, Chairman-cum-Manging Director of Alpha Design Technologies, says, “It is a challenging task for any Indian company to undertake assembly, integration and testing of a satellite and that too for the first time in India.

The Indian EXPRESS
JOURNALISM OF COURAGE
NEW DELHI WWW.INDIANEXPRESS.COM

Mon, 03 Apr, 2017

Superconducting at higher temperatures; a material passes laboratory test

An update from India’s finest research institutes

One of the constraints we face in transportation of electricity is the resistance of materials, such as the wires, that carry the current. Most materials offer some kind of resistance because of which transmission losses in electricity take place, the energy getting dissipated in the form of heat. This resistance is quite useful in certain circumstances, especially in situations where the flow of electrical current needs to be regulated and controlled.

However, in certain situations we like this resistance to be as low as possible. It is possible to have very low resistance, even zero resistance, in some materials in certain special conditions. These materials are called superconductors, but they exhibit this property only at very low temperatures, typically below -200°C. Coils made of superconducting wires can withstand very high current and produce high magnetic fields that are used in MRI imaging. One of the objectives in superconductivity research has been to induce superconductivity in materials at higher temperatures, preferably at room temperature, so that they can be used for everyday applications such as transporting electricity through overhead wires without any transmission losses and more energy-saving electronic devices can be realised.

Generally, elementary particles, depending on their quantum behaviour, are distinguished in two broad classes — the bosons named after Indian physicist Satyendra Nath Bose, and fermions named after Italian scientist Enrico Fermi. For example, recently discovered “Higg’s particles” are bosons while electrons are fermions.

Electrons are described by a theory developed by English scientist Paul Diarc, who combined quantum theory with Einstein’s special theory of relativity, and consequently the electrons can be further classified as Dirac fermions. An extension of this theory predicts the existence of other special classes of fermions, such as the Weyl fermions named after the German mathematician and physicist Hermann Weyl who proposed their existence in 1929.

The Weyl fermions are mass-less particles but they are expected to be real. Weyl fermions were initially expected to be observed in cosmic radiations but that has never happened. Instead, a couple of years ago, they were observed to exist as quasi-particles, collective excitations of electrons, in a semi-metal tantalum arsenide (a compound of tantalum and arsenic) which is now also referred to as a Weyl semi-metal.

Our earlier work had shown that in a different kind of very complex materials, so-called topological Dirac semi-metals, we were able to induce superconductivity in special situations. After the discovery of Weyl semi-metals, we were interested in studying whether the Weyl fermions also have any bearing on superconductivity.

Our recent research at IISER has shown that this indeed is a case. Weyl fermions in tantalum arsenide can not only take part in superconductivity but also do so in a more conventional manner and at relatively high temperatures under certain controllable conditions. So Weyl semi-metals offer a much better possibility of realising superconductivity at higher temperatures. This result can have important consequences for research aimed at obtaining superconductivity at normal temperatures and used for everyday purposes such as electricity transmission without appreciable losses.

But there are more immediate exciting implications. The superconducting phases realised on Weyl semi-metals, in presence of a magnetic field, might also host another type of elusive particles called the Majorana fermions, initially predicted by Italian scientist Ettore Majorana in 1937. One of the major obstacles in quantum computing, the new-age computing that involves quantum data bits (called “qubits”) for processing and storing information, are fragile and easily perturbed by disorders or impurities in a material. The Majorana fermions are known to be “fault tolerant” — they are almost insensitive to disorder. Thus, it is possible to use them in fault-tolerant quantum computing.

THE TIMES OF INDIA

Mon, 03 Apr, 2017

Dara Shukoh's library to get fresh lease of life

By Mohammad Ibrar

Before being killed in a battle of succession by his brother, Dara Shukoh, the eldest son of Mughal emperor Shahjahan, known as a man of intellectual pursuits, had established a library in 1637 near Kashmere Gate.

The books have long been lost, but the building stands even today . Last month, the Delhi chapter of the Indian National Trust for Art and Cultural Heritage (INTACH) began work to restore the historic edifice to its former glory.

After the prince's death, the library building changed hands several times. According to historian Swapna Liddle, it was given to Donna Juliana, the Portuguese governess of the roy al Mughal children and the name behind Sarai Julena near Jamia Millia Islamia. It remained in her family till Nawab Safdarjung purchased it in mid-18th century.

After that, the building morphed into the first British residency occupied by Sir David Ochterlony and then in subsequent years into a government college, a municipal school, office of the state archaeology department and finally into an archaeological museum.

Liddle said that Ochterlony , after buying the building with personal funds, transformed it by incorporating European features while revamping the building. “The original fluted pillars and arches were covered over to produce a façade of pillars in the neoclassical style,“ explained Liddle.

The building is unique for the mix of Mughal architectural features, such as baluster columns and scalloped arches, and colonial additions like the Roman pillars with Ionic capitals. “INTACH hopes to conserve this unique hybrid of architectural styles,“ said Liddle. The series of columns and arches found on the lower level constitute what was perhaps the Qutub Khana, or library , which originally housed the books, most of which were destroyed after the events of 1857.

In 2011, the Sheila Dikshit government decided to convert the library into a city museum in collaboration with INTACH with “the intention of preserving and promoting cultural heritage“. The state archaeology department will display around 2,200 artefacts, including excavated coins, stones and other antiquities from ancient and medieval times. The museum will also familiarise visitors with the history of the seven cities of Delhi.

MAIL TODAY

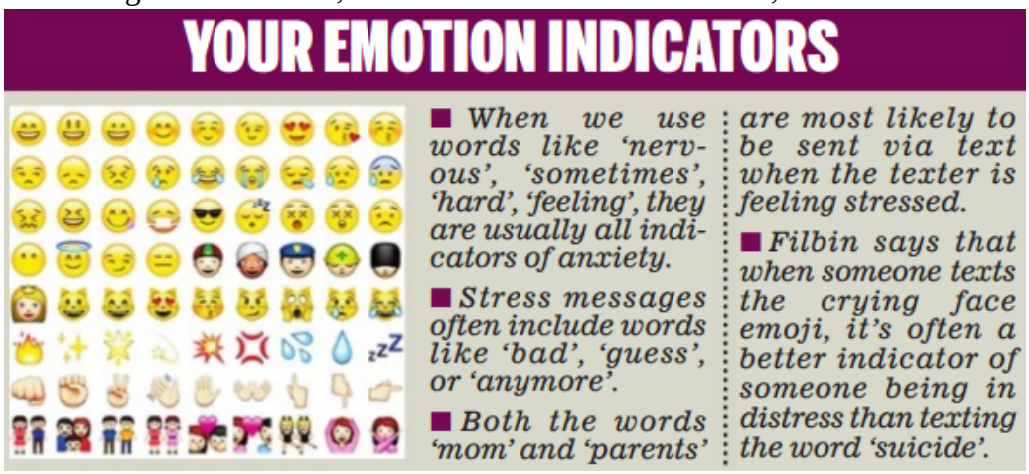
Mon, 03 Apr, 2017

What your texts say about your mental health

Texting has become a part of our everyday life. It's how we communicate with our family, friends and colleagues. But the words and emojis we use can indicate a great deal about the state of our mental health. Our texts can show if we're under stress, suffering from depression, or even having suicidal thoughts.

The Crisis Text Line (CTL), a text messaging–based crisis counseling hotline, has based its entire business on analysing communication. Data scientists at CTL are using machine learning, a type of artificial intelligence, to pull out the words and emojis that signal a person at higher risk of suicide or self-harm. The computer also tells them who on hold needs to jump to the front of the line to be rescued.

According to Bob Filbin, the chief data scientist at CTL, the service has exchanged 33 million messages exchanged with texters in crisis. And depending on how we start a conversation, the words they use, or even the emoji faces can say a lot about what problem we may be facing. When we use words like 'nervous', 'sometimes', 'hard', 'feeling', they are usually all indicators of anxiety. Stress messages often include words like 'bad', 'guess', or 'anymore'. Both the words 'mom' and 'parents' are most likely to be sent via text when the texter is feeling stressed Filbin says that when someone texts the crying face emoji, it's often a better indicator of someone being in distress than texting the word 'suicide'.



CTL's data has turned up all kinds of interesting insight. For instance, Wednesday is the most anxiety-provoking day of the week, and crises involving self-harm often happen in the darkest hours of the night "Before we used the computer, we had a list of 50 words that (we thought) were probably indicative of high risk. Words like 'die', 'cut', 'suicide', 'kill', etc," Filbin told Vox.

"When a data scientist ran the analysis, he found thousands of words and phrases indicative of an active rescue that are actually more predictive." "That's the whole idea and the power, really, of AI — it gets smarter over time." And many scientists believe indicators can be found in a number of social media posts as well. A study published this month by Qntfy, a startup mental health analytics company, used Twitter.

Researchers estimated the emotional content of tweets from hundreds of users who had talked openly about a suicide attempt, and tweets from a control group that did not display suicidal thoughts or feelings. While nearly everyone in their sample included emoji in their tweets, the researchers found that some in the group that talked about attempting suicide employed a narrow range of emoji representing sadness more frequently, such as blue or broken hearts.