BYTE QUEST

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Byte Quest is the article published by the CSE dept of Vasavi College of Engineering regarding the latest innovative Technologies and Software that have been emerged in the competitive world. The motto of this article is to update the people regarding the improvement in technology. The article is designed by the active participation of students under the guidance of faculty coordinators.

☐ Good, bad or indifferent if you are not investing in new technology, you are going to be left behind.

-Philip Green

☐ Once a new technology rolls over you, if you're not part of the steamroller, you're part of the road.

-Stewart Brand

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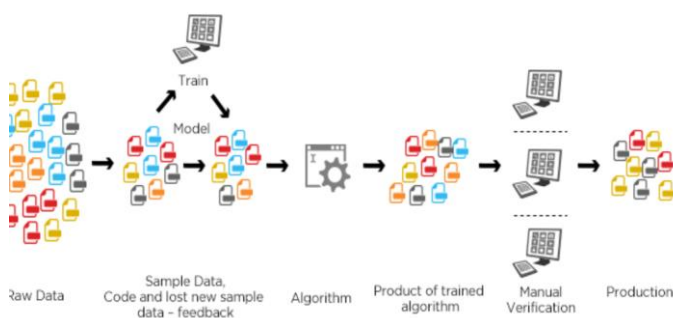|	
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AMAZON GO (A MODERN SHOPPING STORE)

The first clue that there's something unusual about Amazon's store of the future hits you right at the front door. It feels as if you are entering a subway station. A row of gates guard the entrance to the store, known as Amazon Go, allowing in only people with the store's smartphone app. Inside is an 1,800-square foot mini-market packed with shelves of food that you can find in a lot of other convenience stores — soda, potato chips, ketchup. It also has some food usually found at Whole Foods, the supermarket chain that Amazon owns. But the technology that is also inside, mostly tucked away out of sight, enables a shopping experience like no other. There are no cashiers or registers anywhere. Shoppers leave the store through those same gates, without pausing to pull out a credit card. Their Amazon account automatically gets charged for what they take out the door. Every time customers grab an item off a shelf, Amazon says the product is automatically put into the shopping cart of their online account. If customers put the item back on the shelf, Amazon removes it from their virtual basket. The only sign of the technology that makes this possible floats above the store shelves arrays of small cameras, hundreds of them throughout the store. Amazon won't say much about how the system works, other than to say it involves sophisticated computer vision and machine learning software. Amazon's technology can see and identify every item in the store, without attaching a special chip to every can of soup and bag of trail mix.

G. NIKHIL (CSE-A 3/4)

SUPERVISED LEARNING

Machine learning is a core sub-area of artificial intelligence; it enables computers to learn without being explicitly programmed. One of the machine learning techniques is supervised learning. Supervised machine learning is the construction of algorithms that are able to produce general patterns and hypotheses by using externally supplied instances to predict the fate of future instances. Supervised machine learning classification algorithms aim at categorizing data from prior information. In supervised learning problems, we start with a data set containing training examples with associated correct labels. For example, when learning to classify handwritten digits, a supervised learning algorithm takes thousands of pictures of handwritten digits along with labels containing the correct number each image represents. The algorithm will then learn the relationship between the images and their associated numbers, and apply that learned relationship to classify completely new images (without labels) that the machine hasn't seen before. This is how you're able to deposit a check by taking a picture with your phone!

G. MANASA (CSE-A 3/4)

SHAKTI: INDIA'S FIRST INDIGENOUS MICROPROCESSOR

Researchers at Indian Institute of Technology Madras (IIT-M) have designed and booted up India's first microprocessor, Shakti, which could be used in mobile computing and other devices. According to IIT-M, the Shakti microprocessor can be used in low-power Wireless systems and networking systems besides reducing reliance on imported microprocessors in communication and defence sectors. The Microprocessor can be used by others as it is on par with international standards, researchers said. The Shakti family of processors was fabricated at Semi-Conductor Laboratory (SCL), Indian Space Research Organization (ISRO) in Chandigarh, making it the first 'RISC V Microprocessor' to be completely designed and made in India, IIT-M said.

The other crucial aspect of such an indigenous design, development and fabricating approach is reducing the risk of deploying systems that may be infected with back-doors and hardware Trojan. This development will assume huge significance when systems based on Shakti processors are adopted by strategic sectors such as defence, nuclear power installations, government agencies and departments. According to IIT-M, Shakti processor family targets clock speeds to suit various end-user application devices such as various consumer electronic devices, mobile computing devices, embedded low-power wireless systems and networking systems, among others. The project is funded by Union Ministry of Electronics and Information Technology. The impact of this completely indigenous fabrication is that India has now attained independence in designing, developing and fabricating end-to-end systems within the country, leading to self-sufficiency, IIT-M claimed. With a large percentage of applications requiring sub 200 MHz processors, the current success paves the way to producing many hand-held and control application devices.

SANDEEP (CSE-B 2/4)