



## LIVELINESS CHECK – THE NEXT BIG STEP IN FACIAL RECOGNITION.



One reason why the field of technology is constantly evolving is that the development side is always in a tug-of-war with another side that works to identify if the system can be defeated. This has been a very relatable with personal identification systems where there has been a dramatic change in the landscape over the last 5 years.

Establishing identity at first was driven over government issued ID Cards which acted a documented evidence to support the person before you. Since there was no means to verify authenticity of documents, the system had gaps and needed a better system. The government changed the game when Aadhaar cards were issued and it provided a secure access to instantaneously verify identity over biometric data compared with its records. price setting and gated access to auctions to limit outsiders into the auction process.

Biometric parameters have an advantage of being naturally unique. This promoted the use of fingerprints and iris scan as a means of identification and verification. But the usage was curtailed as unauthorized capture and storing of biometric data became a concern.

Technology has now evolved by leaps in the field of Artificial Intelligence where verification of identity can now be done using facial mapping and recognition systems. AI-based systems can take a feed from a camera and create face maps that can be used for identity verification by running them as a comparison with

existing database records. The degree to how accurate the comparison is required is a function of how far the analysis is done.

Ever since iPhones first employed the use of facial recognition as a method to authenticate a user and unlock the phone, a lot of discussion has been on how efficient the system is to differentiate a real person from a photograph or a video playback or can it distinguish identical twins. All these are still very much relevant queries and do form the basis of what to seek in a system that wishes to use a liveness check as a part of the person verification.

### Did you know:



**As per the Master Direction on KYC from RBI in January 2020, Liveness Check is a mandated procedure in Digital KYC process to guard against spoofing and such other fraudulent manipulations.**

### How is Liveness Check done?

The basic requirement from a system performing a Liveness Check is that it should be able to over come spoofing and non-real faces. This is going a step beyond the common Facial Recognition algorithms which can be circumvented simply by holding up a photo of a

person (whether printed, on a smartphone, etc.) to the face recognition camera.

There are a number of approaches to liveness detection using AI tool along with some physical interactions of light and our surroundings as the basis:

#### 1. Texture analysis :

Computing Local Binary Patterns (LBPs) over face regions and using a Support Vector Machine (SVM) to classify the faces as real or spoofed by comparing stored references. This technique usually employs the use of multiple reference images taken in different light conditions so as to affirm results.

#### 2. Frequency analysis:

Since any image seen is on account of reflected light from an object, the Fourier domain of the face can also help distinguish a real face from a spoof. The Fourier frequencies from an actual face are much higher than any reproduction media and the domain range differences can help spot a fake.

#### 3. Variable focusing analysis:

The technique applies to measure the variation of pixel values between consecutive frames captured in different focus values of the camera lens. In simple words, when a camera is focussed on any single point on a 3D object, the surroundings blur out; this does not happen for a 2D recreations as there is no plane of depth.

#### 4. Heuristic-based algorithms:

Liveness can also be checked by using some of the human physical characteristics like eye movement, lip movement, hand gestures and eye blink detection. There are a set of algorithms tuned to track eye movement and blinks to ensure the user is not holding up a photo to the camera.

#### 5. Optical Flow algorithms:

This technique examines the differences and properties of optical flow of light generated from 3D objects and 2D planes. 2D has fewer variations in its plane orientation and this can be helpful in detecting a 3D face with greater accuracy.

In a practical approach, any of the above technique has to be used in conjunction with the Face Recognition algorithm as a conclusive check on identity and liveness.

## What works best?

As it might be somewhat evident from the above available understanding, each technique employs a different approach and processes data differently to build its credibility as a Liveness Check. If the application is for basic identification and liveness confirmation, there has been a greater acceptance for the heuristic-based can be delivered by a small system or mobile devices.

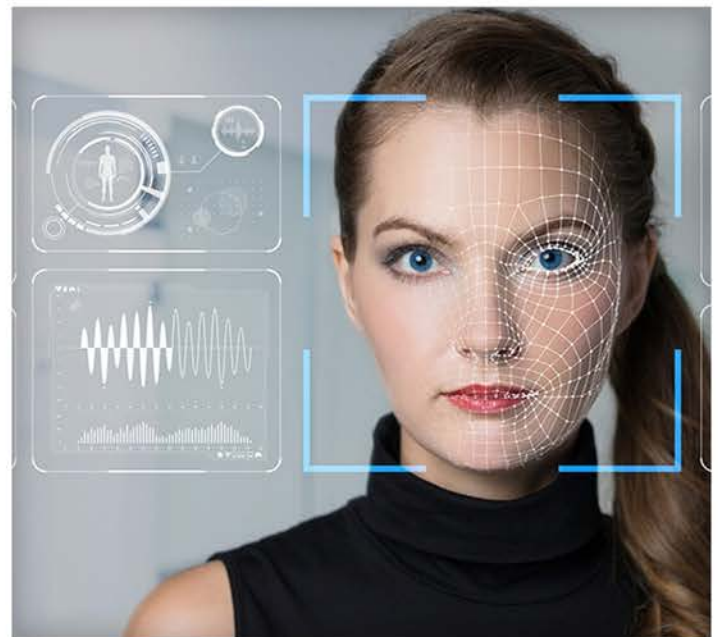
In applications that monitor access to high security areas, military establishments, higher analysis of Fourier frequencies or Optical flows make more sense. This is primarily due to the fact that such establishments and applications have a higher purpose and highly robust processing capabilities installed as an inherent need.

## Technology Application and Market Scenario:

There could not have been a better time for the Government and RBI to approve Video eKYC as the nod was given in January 2020. The technology has seen a higher pickup in the subsequent months as a knee-jerk reaction to the inability of people to be physically being present for in-person verifications in many cases. Banks and financial institutions have been some of the biggest beneficiaries of this technology.

Since KYC is a must in all new banking, lending, insurance and investment accounts, a sizable market has moved to integrate services that offer liveness check and face recognition. One of the other key market that needs this technology is the Government departments that handle pension accounts and need a periodic proof of existence to be produced.

As market stands, the liveness check technology has been implemented by lot of home grown Indian companies who are offering ready solutions off the shelf.



# NOTED

## RECORD EVERY MOMENT.

It is an active practice in many corporates where meetings, discussions and especially brain storming sessions are taken on record in audio. The primary purpose behind such process is that in case there is a need in the future to revisit the points and ideas discussed, it can be done by revisiting the recording.

Now all smart phones offer a recorder app as a default. Though they are what one might say are the basic features of recording the audio and saving them as audio files. What apps like Noted offer is a lot more than just an audio file as an output.

With Noted, you can record the audio as well as add typed notes along with the audio data. This can be of immense use when the audio is referred back to offer a content or details of what is being discussed in the audio. The notes are collectively displayed on the main screen, so you can search the notes for any particular point you may wish to refer back to.

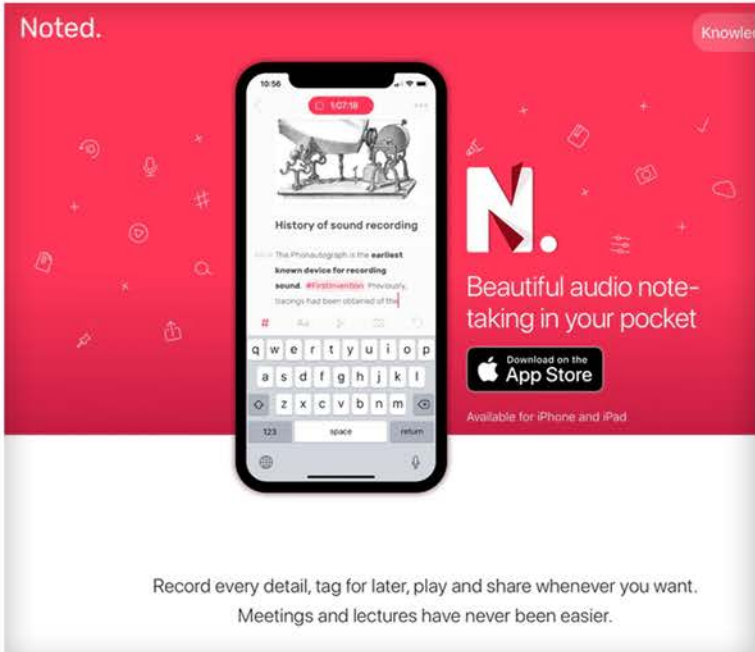
Noted also offers a tagging feature where the user can add a hashtag on the time-line. One can jump directly to a tagged instance on the timeline while listening back. While recording, there are options to pause and resume recordings to facilitate any breaks or interruptions in the flow. For the playback, the speed of audio can be adjusted between 0.25X to 2X so as to suit the listening and better comprehension.

On the text notes, there is the option to highlight text, add annotations, pictures or doodles etc. which may be relevant to the audio.

Noted has a paid option which offers a secure mode on your notes with a password and use Face ID to unlock. The app also has a location awareness – so the app notifies you to stop recording when you leave your location. Noted+ also lets you export PDFs, adjust audio recording quality and offers improved noise reduction.

**The advance of technology is based on making it fit in so that you don't really notice it, so it's part of everyday life**

**- Bill Gates**



Noted.

Knowledge

Beautiful audio note-taking in your pocket

Download on the App Store

Available for iPhone and iPad

Record every detail, tag for later, play and share whenever you want. Meetings and lectures have never been easier.

## What's Hot

A nice and clean UI with highly intuitive controls is the biggest winner. Notes and tags for easier content and navigation makes it ideal for meetings and lecture session where you finally look to cull out the main points. The flexibility on the playback speed, annotations on the notes can be of immense aid as well. The paid features do make a higher impact to the experience.

## What's Not

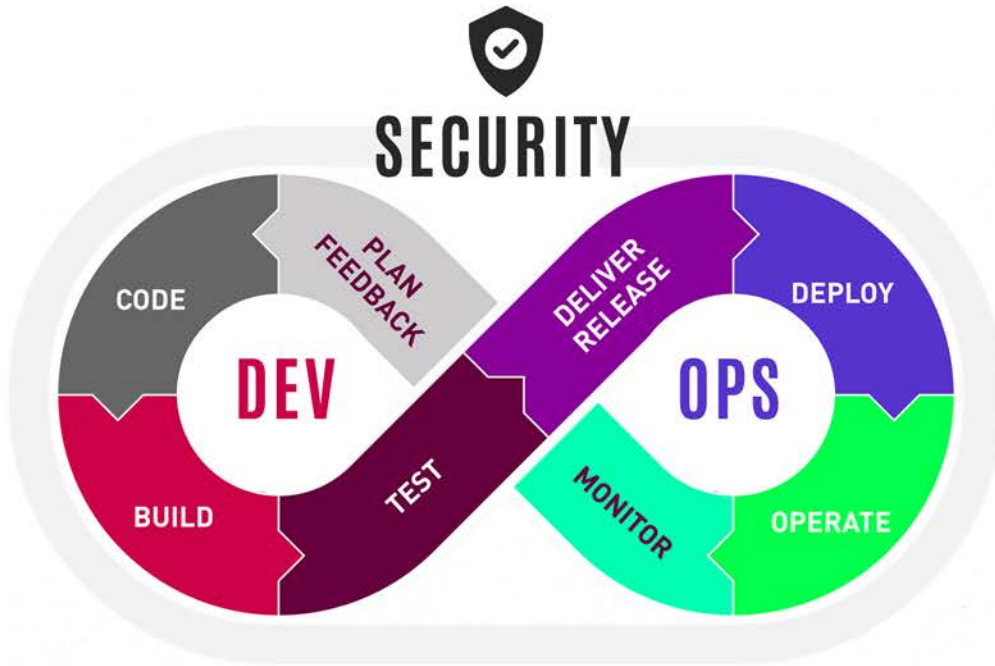
Unless you opt for the paid version, you can only have a maximum of 5 recordings on your device at any one time. The other short coming can be that Noted is only limited to iOS devices; you will need an iPhone or a iPad to use the same.

## “To Have” or “Not to Have”

We do recommend Notes to be used as a great recording tool for anyone who does prefer to have meetings and lectures available for review and prefer to add notes for later when required. This also ensure that the focus in a room is on the discussion and not towards taking notes for posterity. At a cost of Rs. 1049/ year, it can be of great help in a corporate meeting room for all the right reasons.

# UNDERSTAND THE DEVSECOPS METHODOLOGY

## BRINGING SECURITY INTO THE FOREFRONT



The platform of DevOps is not about developing a system or infrastructure and improving the efficiency of the operation team. It offers a lot more than what you believe it does. Thus, if you want to get the best out of DevOps, then the integration of IT security

becomes imperative for you. But why does it play such a significant role in enhancing the responsiveness and agility of a DevOps approach?

Previously, the development cycles of an IT industry used to last for months or years. Therefore, during that period, only a single team was responsible for catering to the aspect of security. However, the time, as well as the notion of working, has changed now.

These days, most DevOps users tend to work in a collaborative framework for boosting their proficiency. Hence, the integration of security has become a shared responsibility now. The same accountability for the greater good has led to the initiation of DevSecOps.

### DevSecOps – A Brief Introduction

The term “DevSecOps” is a colloquial abbreviation of – Development (or software or anything else) + Security + Operations. Hence, as you can already perceive, you will need to place and promote security practices during the early stages of software development. The methodology of DevSecOps is quite similar to that of DevOps. They operate through an agile and responsive framework and break down larger projects into relatively smaller chunks.

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Nevertheless, as you can understand from the name, DevSecOps is more lenient towards security. It incorporates a new security infrastructure in almost every step during the development procedure. Due to this reason, both the security and development team will need to indulge in continual communication while working. This scenario is quite unusual in DevOps, as in this practice, these two groups tend to collaborate in the later stages.

### What is the Prime Goal of Integrating DevSecOps?

The primary focus of DevSecOps usually lies in integrating better collaboration between security and the development team. It attempts to do during the earliest stage of the procedure to ensure optimum protection for the project.

Hence, the development team gets the opportunity to try out different methods for their purpose without worrying about security.

Moreover, the overall operational efficiency becomes much more agile in several departments and makes the whole system much more responsive.

### Can Implementing DevSecOps in an Infrastructure be beneficial?

The implementation of DevSecOps can be beneficial for an IT organization in several aspects. Some of the most significant ones among them have been jotted down below.

## In-Built, Integrated Security

☒The initial-stage DevSecOps module comes with an in-built DevOps-based security system. Thus, the bar stays relatively high from the beginning. As you and your team progress with the development, you can improve the system's quality and efficiency even more. Thus, with it, your newly developed software system will be well-protected all the time.

## Automated

The DevSecOps is a computerized component. Once you establish it on your system, it will begin working right away. As you will not need to do anything manually with it, you can peacefully concentrate on advanced coding to upgrade it even more. Furthermore, it makes the whole development procedure pretty smooth, as it does not interfere with anything.

## Agility and Speed

☒As you already know, DevOps is considered synonymous with superior speed and agility. Thus, the same can be experienced in DevSecOps as well. The module is high-speed, and due to this reason, it can identify the grave vulnerabilities in a code pretty

## Better Cloud Deployment

The deployment of cloud services has always been a risky business due to security issues. However, you will not need to worry about it if you have already integrated DevSecOps into your system. With strict security protocols, it can maximize the protective aura regarding the deployment and ensure its safety until the end of the procedure.

## In Conclusion

The practice of DevSecOps can, indeed, revolutionize the security system of your IT organization. However, being a comparatively new module, it requires a decent bit of expertise for proper implementation. So, be sure to hire someone who is proficient in this field and, thus, can perform the integration procedure properly.