



## Literature Survey on OSOID

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### ABSTRACT –

Considering India's population of 139 crores, the United Education Interface (UEI) is surely an aspiring project with a higher scope of demand. UEI provides various services that would provide a unique identity to every individual student. UEI believes in proper documentation of students' educational records and sharing it with the schools and colleges as well as recruiters for students' verification. As a game-changer, One Student One Id (OSOID) can be used by each student and school to maintain their records securely, and privately. This would fasten the verification process that is done when a student changes his/her school/college and also while looking for jobs as a freshman. This would also keep a tab of fake documents or breaches of the system.

**Keywords:** *United Education Interface (UEI), Identity, documentation, One Student One Id (OSOID), privacy, verification, breachers.*

## I. INDIVIDUAL INFORMATION REQUIRED IN SERVICE DELIVERY

An individual's proof of identity is very crucial in day-to-day life for various service and identity entitlement establishments like banking services, having a ration card, getting a pension, proof of age for applying for a loan, etc. The lack of identity issue and the huge queue for the verification process was addressed through the Aadhaar card [1].

But it didn't address the underlying difficulty in the verification of educational documents for both public and private services like issuing a domicile or an affidavit, taking admission to school/college, and also during recruitment processes by HR. Also due to vast differences in language and admission processes/ recruitment processes, different dialects can act as a barrier between a person and the service provider. Moreover, the time taken to verify the real documents depends on the service providers.

There is also a lack of authenticity verification by the providers due to the unavailability of proper documents, records, or a lack of proper data set. This results in unfair decisions for deserving students.

### 1.1 Tokens involved in Verification

1.1.1. *What the applicant wants* - Admission to a new school for the first time or due to the transfer of his/her parents. Domicile certificate for various government exams. Affidavit for admission procedures, marriages, degree certificate. Verification of documents for recruitment of freshers.

1.1.2. *What the applicant needs* - Aadhaar card, mobile number, PAN card [2], higher and secondary school certificates, school leaving certificates, migration certificate, sometimes every class result records, degree certificates, and resume. These things act as the most common form of tokens for educational and service institutes.

## 2. CURRENT CHALLENGES IN THE SYSTEM

In the absence of a proper monitoring system, every individual institute follows its procedures for verification. This leads to a large amount of time taken to verify the real identity and documents of an individual.

### 2.1 Challenges faced in Identity Creation

As a part of verification in different agencies, some institutes ask for individuals furnished physical identity like a resume or domicile of the state, while some ask for proper schooling documents including their Aadhaar card details, pan card, passport, and report cards. Only hard copies of real documents at the time of verification are accepted as identity proof.

This approach has the following challenges:

- Proper documentation of the applicant should be present at the time of verification and validation. Though, in almost every instance, there are no such measures to check the authenticity of the documents. This makes the verification process slow and the waiting queues long.
- An individual creates multiple copies of original documents for the institute or agencies so they can refer to them whenever they wish to look for the individual's portfolio. But that means going through bundles of papers present in the store.
- Higher risk of fraudulent documents due to little and poor means of verification.
- Government can't properly keep a tab on students going to rural schools without a physical survey. That means a delay in the implementation of proper government welfare schemes in the needed region for educational facilities like mid-day meals [3], 'Beti Bachao, beti padhao', and others.
- The process for applying for scholarships [4] requires documents that can be forged, but as discussed earlier, the system to check this is not so strong.

### 3. STUDENT UNIQUE IDENTITY – VERIFIABLE ONLINE AND AUTHENTIC

In a fast-paced world, tedious verification of documents takes hours to days resulting in piles and piles of papers stacking in a government office or registration desk at school and college. Due to its large population and different language barriers, keeping track of educational identity is one of the prevailing challenges. This happens while verifying various documents except the 10th and 12th is not quite easy.

Every time a student wants to access a service or benefit, this can result in duplicity, fake documents as well as loss of data if original documents are lost. So, one of the major concerns is the safety and security of real documents. Keeping all these challenges in mind, One Student one Identification (OSOID) is developed. It is an individual's hard copy, like an ATM card, which securely stores the person's educational details at one stop. The demographic attributes are name, photograph, gender, unique Student Token number, D.O.B., address, and a QR code. This card most likely looks like an Aadhaar card, but the unique student token contains characters as well as numbers assigned to every student during their enrolment in the first school.

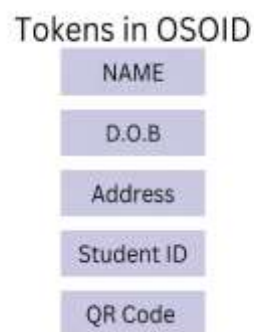


Fig 3.1. OSOID Tokens

This unique student number is linked to the individual's Aadhaar number and phone number. Linking with Aadhaar guarantees the uniqueness and validity of the person. Also, biometrics like fingerprint and iris patterns get linked to our OSOID once the Aadhaar is linked. This provides privacy and security to the data.

Since the data can not be altered but can be just written to the individual's database only by the authorized institutes. This can be used to render any services that require an individual's verified documents.

This system can address several issues and challenges of the current system that we discussed above. Here are some key benefits that OSOID provides over the current system:

- Availability of portable and verified educational documents that can be accessed anywhere.
- It removes fake and duplicate identities and certificates from the system.
- Lowers beneficiary harassment due to decreased dependencies on manual paperwork and procedures.
- Increase in services due faster online authentication.
- An individual can complete all the procedures, sitting at one place. There's no requirement to physically submit the hard copies.
- Lower risks of theft of original documents and that weren't otherwise producible, unless appealed to the concerned school for issuing a new certificate for the same.

- Reduces paper work and the task of searching through bundles of pages.
- No headache of standing in longer queues at various centres for asking the required service.

Concerning India's context, convenience, higher access, and transparency are provided to every single individual. If a person loses his original documents, he won't face challenges while proving his identity.

OSOID will also be linked to the student's Aadhaar and mobile number making it easier for the institute to get directly in touch with the concerned individual.

This can benefit the service agencies by reducing their time to find a potential candidate for the job. This also opens new development areas for an individual.



Fig 3.2 Student's unique identity

#### 4. APPLICATION OF OSOID ACROSS VARIOUS DOMAINS

OSOID can be leveraged effectively across educational domains for improving service delivery to the students irrespective of service being delivered by the government, public sector, or private educational institutes.

OSOID is an IT-enabled identity solution that needs to be leveraged appropriately by educational institutes.

Subsequent sections in this chapter cover high-level usage scenarios of OSOID authentication within the following domains:

##### 4.1 Government Educational Programs

The Indian government has been investing a large number of funds in multiple educational schemes to cover underprivileged and marginalized families by providing primary or basic education and helping them to be part of the Indian growth and mainstream economy.

To achieve UEE (Universalisation of Elementary Education), the government of India has initiated several programs and projects. The Government adopts an integrated approach in the implementation of the various centrally sponsored schemes, in keeping with principles of the National Policy on Education, to ensure that the education of equitable quality for all to fully harness the nation's human resource potential. The common objectives are to enhance access through the expansion of quality school education; to promote equity through the inclusion of disadvantaged groups and weaker sections, and to improve the quality of education.

##### 4.1.1 Use of OSOID in Beneficiary identification:

The majority of welfare programs use physical identity documents and rely on manual processes for beneficiary identification. These practices result in the following issues:

- Lack of identity documents prevents poor and marginalized students from accessing the benefits program.
- Existence of duplicate and fake beneficiaries.
- Students may avail of benefits from multiple programs simultaneously when they may not be entitled to them. For example, a student can only avail of one of the scholarships like Sarva Shiksha Abhiyan (SSA), Mid-Day Meal Scheme (MDMS), etc.

The use of OSOID to link beneficiaries with their OSOID numbers in the Beneficiary identification and approval process can address these issues. The applicant provides his/her Aadhaar number as part of the application which is saved in the educational schemes program database along with other application data. In addition, the applicant authenticates his/her OSOID number through any chosen method (possibly OTP) to confirm.

The applicant's name, address, and date of birth provided in the application may also be verified against the OSOID record. As part of the beneficiary approval step, the applicant's OSOID number is matched against existing beneficiaries to ensure that the applicant is not an existing beneficiary. Matching the applicant against the national-level beneficiary database will help to remove all the duplicates at the national level.

By removing duplicate and fake beneficiaries, educational scheme programs can utilize scarce development funds more effectively. In addition, the proposed intervention provides quick and reliable electronic verification for applicants' names, addresses, and dates of birth; an easier and more convenient way for applicants to prove their identity. It reduces dependency on document-based proofs and facilitates faster application processing.

If OSOID is adopted by all welfare programs, it will also allow the verification of beneficiary across different programs in case student is not allowed to avail of certain benefits simultaneously.

#### **4.2 OSOID for Jobs recruitment**

Multiple MNCs and service companies require educational details of the applicants as well as their work history. By providing them with the applicant's OSOID number, various details like the applicant's name, address, and date of birth provided in the application may be verified against the OSOID record along with the certifications.

An applicant does not need to be present physically for the paperwork. OSOID provides one of its kind opportunities to identify an individual electronically.

At one QR scan of the individual's OSOID card, every little detail of the individual can be accessed, only if authorized by that concerned individual.

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## **5. KEY LESSONS AND CONCLUSION**

UEI system is purely a one-stop verification platform for the educational documents of an individual. This can be used both by the government as well as private agencies. This strengthens security and becomes a boon during this time-taking verification process. For now, the security provided to the database is by cryptographic API but in the future, the UEI platform will be shifted to blockchain [5] for better security.

Blockchain is a shared ledger consisting of a block of nodes that cannot be overwritten once a transaction is made. As there have been many data leaks due to the Aadhaar system like over 100 million bank account number leaks [6] or a breach in Jio users' data on magicapk.com [7]. This leads us to ensure higher security in UEI and individual data. Furthermore, even the Pentagon can be and has been hacked [8].

There are various rules and regulations by which the system and the agencies should abide for national welfare. Eventually, this OSOID will become the identity of a student across the nation. So, storing information and personal data at a national level increases the risk of breaches that must be countered.

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