

TikiWiki CMS Groupware

How Supreme Court of India used only open source
to process claims worth Rs. 7000 crore

The Real World Problem: Real Estate Non-delivery

Misc. news coverage:

[Realty bites: Indian property slump leaves beleaguered banks exposed](#)

[Flat or refund, mark it: SC to Unitech buyers](#)

[Supreme Court Comes to the Rescue of Homebuyers, Tells Jaypee Bosses to Pay Up](#)

The screenshot displays the homepage of The Economic Times website. The top navigation bar includes sections like 'Home', 'Industry', 'Auto', 'Banking/Finance', 'Cons. Products', 'Energy', 'Ind'l Goods/Svs', 'Healthcare/Biotech', 'Services', and 'More'. A prominent banner for '#LifeChangingPlaces' is visible, along with a 'Discover more' button. Below the banner, there are market data sections for Nifty (11,464.00, +35.70) and NSE Gainer-Large Cap (General Insurance Co., 260.60, +43.40). The main headline reads: 'Rs 1.56 lakh cr worth flats launched in 2011 and before still incomplete; NCR builders top drag'. The sub-headline states: 'Out of the nearly 2.2 lakh units, JLL said in a report that "about 30,000 units are confirmed to be scrapped"'. The article is dated 'PTI | Aug 15, 2019, 02:19 PM IST'. A small image shows a construction site with cranes. The article text mentions: 'NEW DELHI: Nearly 2.2 lakh housing units, worth Rs 1.56 lakh crore, launched in 2011 and before across seven major cities are yet to be completed. According to JLL data, the real estate companies of Delhi-NCR are biggest defaulters as their contribution in delayed housing units accounts for 71 per cent in volume and 56 per cent in value terms.' On the right side of the article, there is a sidebar with 'FEATURED FUNDS' including 'Aditya Birla Sun Life Tax Relief 96 Direct-Growth..'. The bottom of the page features a large advertisement for 'AVEVA Industrial Transformation (IX) 4.0' showing a worker in a hard hat and safety gear.

Supreme Court Mandated Portal: What Was Needed

Primary requirements:

- High availability * _ * _ *
- Scalable _ *
- Low cost
- Tight deadline & delivery on schedule *
- Open ended deliverables - vendor committed, client not

And also:

High traffic, peak & trough usage pattern, high volume data storage, **highly sensitive data**, high security, compliance with Indian laws & regulations

Infrastructure Plan A: Think Like a (Indian) CIO

Back-to-back Vendor Agreements

But:

99.9% uptime not good enough

Best effort unacceptable

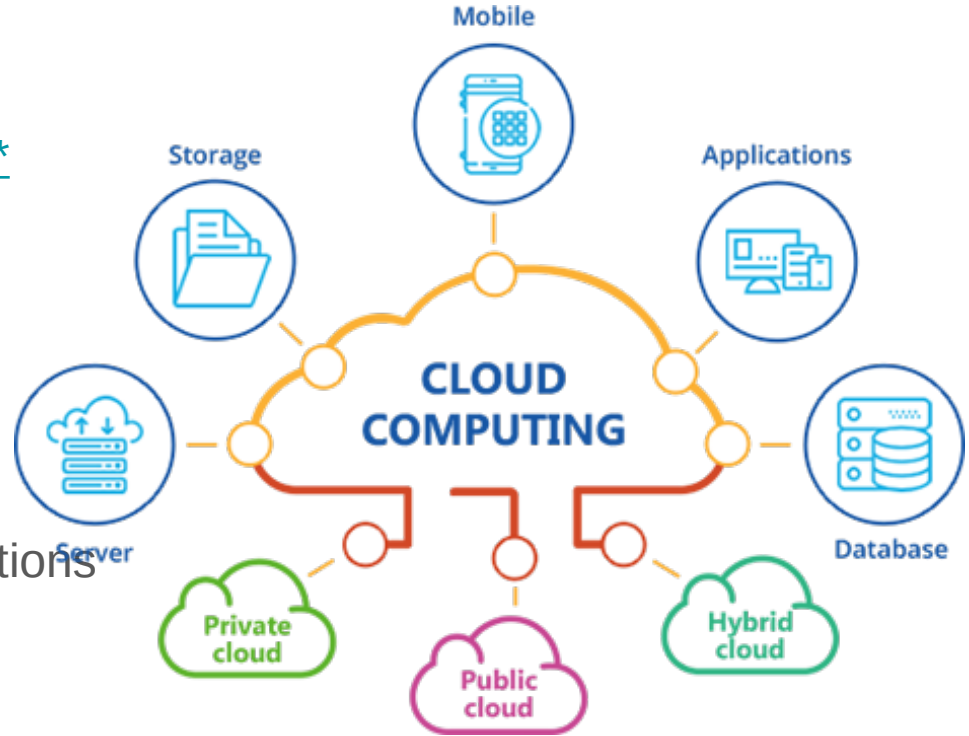
There were no takers for
ironclad agreements! :-)



Infrastructure Plan B: Do It Yourself

Mix and match cloud services

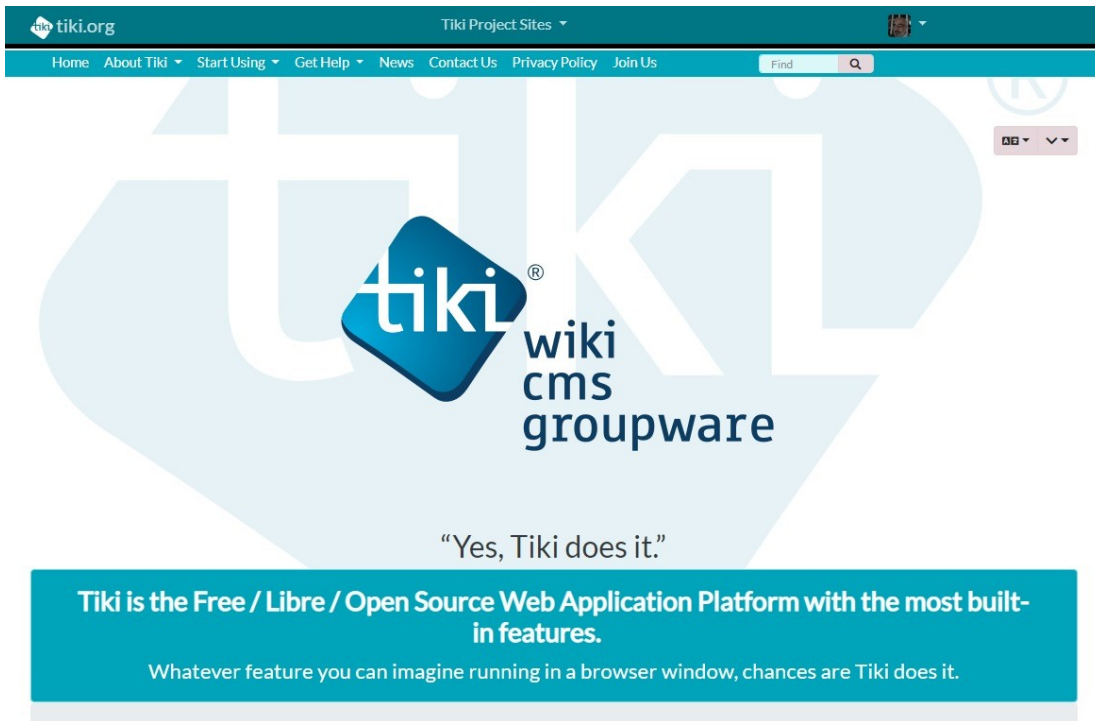
- Shop around to keep costs low * *
- Design for scalability
- Always build redundancy
- Encrypt data at rest & in transit
- Avoid single points of failure
- Monitor & alert on danger
- Backup fast & often
- Comply with Indian laws & regulations
- **Take responsibility**



WebApp Powered by TikiWiki + Other FOSS Software

TikiWiki Overview:

- Interoperable (*nix, Win...)
- PHP, MySQL, Smarty, jQuery, Zend, Bootstrap
- Most built-in features [*](#)
- Monolithic, no plugins [*](#)
- Celebrating 17 years [*](#)
- Dogfooding policy [*](#)
- Over a million downloads [*](#)
- Award winning [*](#)



Typical SC Mandated Claims Registration Portals

End user (claimant) workflow:

First Use

- Fill form + upload documents
- Submit form to create account
- Validate email to confirm account

Subsequent Use

- Login
- View / edit specific account info

Examples of Portal Functionality:

- Simple: Fill form; account is created automatically [*](#)
- Complex: Register to create account, then login to fill form [*](#)
- Conditional: Different forms for different claimant types [*](#)
- Computational: claims involving financial calculations [*](#)

Challenge #1: Database Design & Data Structure

On tight deadlines, the client needed to ideate, view, test and get approval for claim application forms.

Tiki-Wiki Trackers, which are mini-databases, were used to work interactively with the client and show in real time revisions & last minute changes which needed to be made.

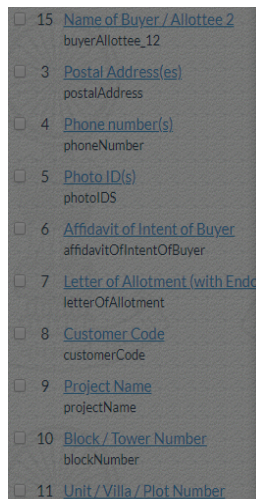
The screenshot displays the 'Tracker Fields: Claimants' interface. It features a table with columns for ID, Name, Type, List, Title, Search, Public, Mandatory, and Actions. The table lists 14 fields, each with a checkbox for selection and a red 'X' in the Actions column. A 'Menu' dropdown is visible on the right, and a 'Save All' button is at the bottom.

ID	Name	Type	List	Title	Search	Public	Mandatory	Actions
1	User ID userId	User Selector	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	Name of Buyer / Allottee 1 f,2	Text Field	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
15	Name of Buyer / Allottee 2 buyerAllottee, 12	Text Field	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Postal Address(es) postalAddress	Text Area	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	Phone number(s) phoneNumber	Text Field	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5	Photo ID(s) photoID5	Files	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6	Affidavit of Intent of Buyer affidavitOfIntentOfBuyer	Files	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7	Letter of Allotment (with Endorsement Page, if any) letterOfAllotment	Files	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8	Customer Code customerCode	Text Field	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9	Project Name projectName	Dropdown	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
10	Block / Tower Number blockNumber	Text Field	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11	Unit / Villa / Plot Number unit	Text Field	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
16	Amount Paid amountPaid	Numeric Field	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
13	Declaration of Intent declarationOfIntent	Dropdown	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
14	Remarks remarks	Text Area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Challenge #2: Data Validation Before Account Creation

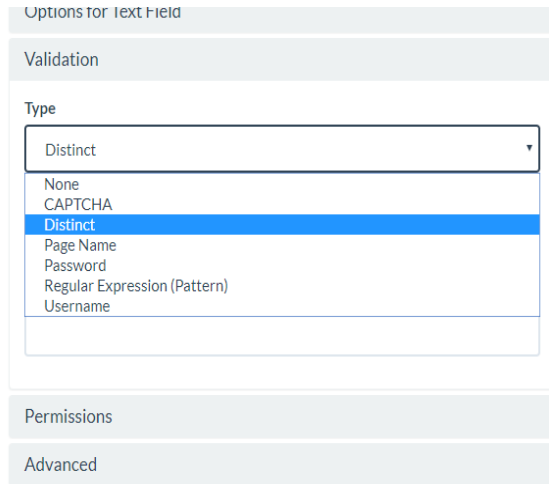
No assumptions could be made about aptitude of the people submitting claims on the Supreme Court Portal so the data validation process used at the time of submission had to be robust.

TikiWiki offers multiple options for data validation, including Regular Expressions so all data entered could be checked, errors pointed out and corrected by the claimant before submission of claim.



A screenshot of a form with multiple fields, each with a checkbox and a label. The fields are:

- ☐ 15 [Name of Buyer / Allottee 2](#)
buyerAllottee_12
- ☐ 3 [Postal Address\(es\)](#)
postalAddress
- ☐ 4 [Phone number\(s\)](#)
phoneNumber
- ☐ 5 [Photo ID\(s\)](#)
photoIDS
- ☐ 6 [Affidavit of Intent of Buyer](#)
affidavitOfIntentOfBuyer
- ☐ 7 [Letter of Allotment \(with Endor](#)
letterOfAllotment
- ☐ 8 [Customer Code](#)
customerCode
- ☐ 9 [Project Name](#)
projectName
- ☐ 10 [Block / Tower Number](#)
blockNumber
- ☐ 11 [Unit / Villa / Plot Number](#)

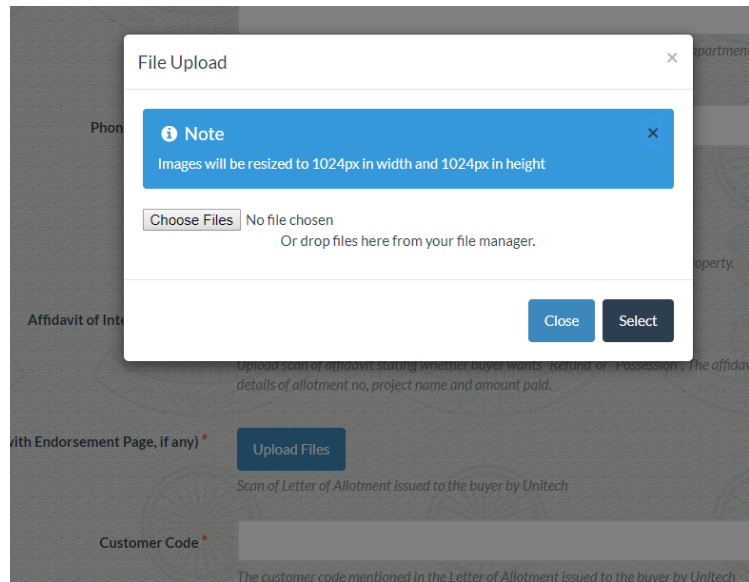


A screenshot of the 'Options for Text Field' dialog box. The dialog has a 'Validation' section and a 'Permissions' section. The 'Validation' section has a 'Type' dropdown menu with the following options: Distinct, None, CAPTCHA, Distinct (highlighted), Page Name, Password, Regular Expression (Pattern), and Username. The 'Permissions' section has a 'Advanced' button.

Challenge #3: ~50 MB Upload on Account Creation

Claimants had to upload scan of ID proof, address proof and other documents to support their claim. A HTML form has a high failure rate if ~50 MB of data is uploaded when pressing the submit button.

TikiWiki offers AJAX based file uploads (it has most built-in features, remember!) and this was used to enable people with even low speed internet to submit claims successfully.

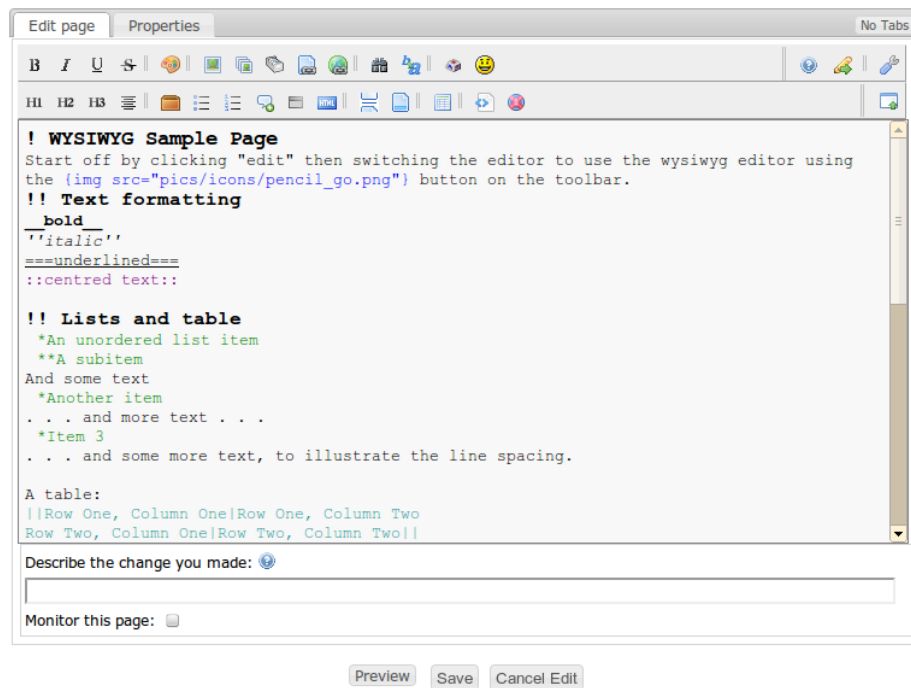


Challenge #4: Web Content Updates

The team of the Amicus Curiae had to learn how to update content on the Portal and teaching them, all lawyers, HTML would be impossible.

TikiWiki uses Wiki markup, the same syntax that Wikipedia uses. It is very easy for lay people and professionals like teachers to learn and use this.

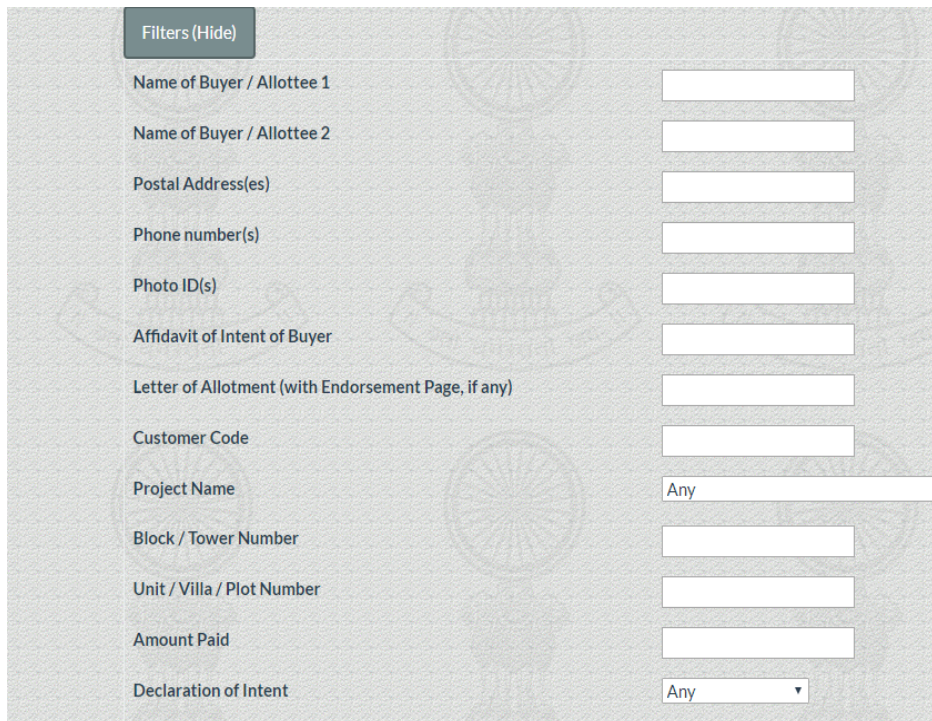
The Amicus Curiae team adopted it quite easily and have done all updates to the Portal on their own.



Challenge #5: Back Office MIS & Data Export

The Amicus Curiae team wanted to search the database and generate reports on demand.

TikiWiki offers a strong combination of data retrieval and formatting, in addition to any number crunching that was required. The Amicus Curiae team was able to export data and generate reports the day before Supreme Court hearings and presented current data at all times.



The screenshot displays a web application interface for filtering data. At the top left, there is a button labeled "Filters (Hide)". Below this, a list of search criteria is presented, each with a corresponding input field:

- Name of Buyer / Allottee 1
- Name of Buyer / Allottee 2
- Postal Address(es)
- Phone number(s)
- Photo ID(s)
- Affidavit of Intent of Buyer
- Letter of Allotment (with Endorsement Page, if any)
- Customer Code
- Project Name (with a dropdown menu showing "Any")
- Block / Tower Number
- Unit / Villa / Plot Number
- Amount Paid
- Declaration of Intent (with a dropdown menu showing "Any")

Challenge #6: Unexpected Threat From Antinationals

The portals mandated by Supreme Court were storing Aadhaar cards of many of the claimants of Unitech, Jaypee, Amrapali et al.

This made the portals of high interest to hackers all over the world at the peak of the Aadhaar data security debate.

OST NEWS POLITICS ENTERTAINMENT TECHNOLOGY BOOKS LIFE

TECH 11/09/2018 10:08 AM IST | Updated 26/09/2018 12:07 PM IST

UIDAI's Aadhaar Software Hacked, ID Database Compromised, Experts Confirm

Skilled hackers disabled security features of Aadhaar enrolment software, circulated hack on Whatsapp

By Rachna Khaira, Aman Sethi, Gopal Sathe



Reasons for Success

- Spirit of Adventure
- Confidence in Own Ability
- Belief in FOSS
- Effective Partnership (Amicus Curiae team, cloud service providers, others)

Questions, comments?

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