Overview and successful projects of ITE&C Dept.

Govt. of Andhra Pradesh

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Information Technology, Electronics & Communication Department
(ITE&C Dept.)
Govt. of Andhra Pradesh
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Andhra Pradesh Technology Services (APTS)

- A wholly-owned Government Company under ITE&C Dept
- Aadhaar AUA-KUA Services to all Government Departments
- e-Procurement & e-Auction (https://tender.apeprocurement.gov.in/)
- Infrastructure Projects – APSWAN, APSDC, AP Secretariat Campus Area Network
- https://www.aptsgov.in/

Key Offerings to other states:
- Cyber Security – Assurance, Monitoring and Capacity Building
- AUA – KUA Services

e- Pragati

- Society of GoAP which supports the areas of e-Governance and digital transformation.
- aims to provide integrated citizen centric services for various departmental processes and welfare schemes undertaken by the Government.
- Adopts the best principles of Enterprise Architecture
- 7 Missions: Primary, Social Empowerment, Skill Development, Service Sector, Industry, Infrastructure and Urban Development.
- 5 Grids: Power, Water, Fibre, Road and Gas.
- 5 Campaigns: Agriculture, Education, Health & Sanitation, Environment & Poverty Alleviation
- CM Dashboards, GSWS platform, Agri Marketing, YSR Matsyakara Bharosa, eChallan RTA
- https://e-pragati.in/

Key Offerings to other states:
- Enterprise Architecture implementation in Government Sectors
Andhra Pradesh Information Technology Academy. (APITA)

- APITA focuses on bridging the gap between industry and academia and demand driven innovative job creation initiatives.
- Develop and offer courses in IT, Electronics and Communications in collaboration with Industry and Academia.
- Bridge the urban rural divide in producing readily employable graduates.
- Collaborate with Industry, Educational and Research Institutions for the promotion and development of e-Governance.
- http://www.apita.ap.gov.in

International Institute of Digital Technologies (IIDT)

- International Institute of Digital Technologies (IIDT) was established in 2016 at Tirupati by the Government of Andhra Pradesh.
- IIDT’s Vision is to ‘make Andhra Pradesh to be the preferred destination for Digital opportunities in India’
- IIDT’s Mission is ‘to create professionals, experts and entrepreneurs for the Digital future.
- https://www.iidt.edu.in/

Industry Academia Collaboration

- Oracle, Microsoft, SAP, Infosys, ISB, Auto Desk, IBM, National Instruments, AWS, DQ Entertainment
- 202 Engineering Colleges & 167 Degree Colleges in State are Registered

Post Graduate Programme in

- Cyber Security
- Data Science
- Artificial Intelligence and Machine Learning
Successful Projects

1. Grama Ward Sachivalayam
Government of Andhra Pradesh is committed to:

- Revamp delivery systems in the State
- Improve living standards of the people through the concept of “Navarathnalu” as core theme of governance.
- Ensure leak proof implementation of Government Programmes/ Schemes.
- Extend all Citizen Centric Services to Grama Panchayats & Wards
- Extend the Grievance Redressal System– Spandana to Grama Panchayats & Wards
Core components of Grama/Ward Secretariat

- **Buildings and other amenities**
  - Office furniture
  - Internet Connectivity

- **Human Resources**
  - Volunteers (2.34 lakhs Volunteers are identified and selected.)
  - Department Functionaries @ Grama/Ward Sachivalayam like Digital Assistant, ANM, Police, Lineman, Social Welfare, Education Assistant, Village Revenue Officer (VRO), Food & Civil Supplies, Banking Correspondent (with PoS Device) and Grama/Ward Secretary.

- **Hardware** – Computers, UPS, Printers, Smartphones, TABS, Bio-metric devices

- **Software** (Web Portal with various Dashboards, Mobile App – 400+ Citizen centric Services, Grievance Redressal System – Spandana, Asset Management Software)

- **Field operations agency (FOA)** - to conduct Training, Workshops, Coordinating and Monitoring Grama/Village Volunteers and Grama Secretariats

- **Call center**

- **Permanent Aadhaar Enrolment Centers (PECs – 500)**
Volunteers for delivering Government Services at doorstep of all eligible households.

Attending to the process of identifying the eligible beneficiaries, among the 50 households under his/her jurisdiction.

Bringing the grievances of Households to the notice of Village Secretariat for redressal.

Distribution of Social Security Pensions.

Door delivery of Ration

Distribution of Ration Cards/ Aarogyasri (Health) Cards, house site pattas

All types of Certificates (Caste, Nativity, Residence, Death, Birth etc.)

Delivery of Sanction orders of Economic Support Schemes of various Corporations (SC/ ST/ BC/ Minorities Corporations/ APKVIB/ Industries etc.)
One-Stop public grievance redressal platform for the citizens of Andhra Pradesh. The grievances can be registered from various sources viz. GSWS, 1902 Call Center, Mobile App, Web Application, Collectorate grievance day (Spandana Monday).

- 1902 – Spandana Call Center for general grievances
- Dedicated Call Center for all the public grievances including Navaratnalu scheme related grievances.
- 14400 - Call Center for corruption related grievances
- A dedicated 24/7 Call Center to register the complaints related to corruption or bribe. The citizen details are kept confidential and will never be disclosed.
- 1907 - Call Center for YSR Rythu Bharosa grievances
- A dedicated 24/7 Call Center to register the complaints related to Rythu Bharosa and agriculture.
- 14500 - Call Center for sand & excise related grievances
- Dedicated Call Center to register the complaints related to sand and excise.
Grievance can be registered from multiple sources and a unique “YSR#” (Your Spandana Request Number) will be generated for each grievance.

Grievance will be assigned to the respective redressal officer.

Redressal officer performs the necessary enquiry, action and redresses the grievance.

Citizen can ‘reopen’ the grievance if not satisfied with the resolution and the same will be assigned to the higher authorities to redress the grievance.

Spandana grievances from 02-Oct-2020 to Till date (New Portal)

- Grievances Received: 6,66,073
- Grievances Redressed: 6,12,837
- Grievances In Progress: 53,236
Digital Libraries

- 4,530 would be established in the first phase

- Rs 140 crore would be spent for providing basic amenities, computer equipment and other requirements

- Useful for graduate students apart from primary and secondary school students

- Material related to common entrance tests would be made available

- Three desktops, UPS, desktop barcode printer, scanner, laser printer, software, anti-virus software, unlimited bandwidth internet and minimum facilities
Successful Projects

2. Unified Ticketing Solution (UTS)

(Andhra Pradesh State Road Transport Corporation – APSRTC)
Unified Ticketing Solutions – Introduction to APSRTC

42 Lakh Kms Operated daily
12,000 buses

Online Reservation System
50,384
Seat transactions per day

Offline Electronic Ticketing Machine (in Bus)
₹ 34.35 Lakhs
Passengers per day

62 Lakh passengers every day
85% revenue through Cash

Bus Pass Transactions (Issue/Renewal)
9,000
Per day

Bus Pass Validations
₹ 27 Lakhs
Per day
Unified Ticketing Solutions – IT Systems

- Online Passenger Reservation System
- Live Vehicle Tracking System
- Electronic Ticket Issue Machines (TIMs)
- Passenger Information System (Passengers can track the bus location)
- Online Bus Pass issue System
- Online Parcel booking System
Unified Ticketing Solutions – Features

**Uphold social distancing Norms**
New Contactless Ticketing Process

Maximising Online Inventory
- Increasing visibility of seats for online booking from 1.40 Lks to ~20 Lks per day (15 times).

Book Anywhere - Anytime
Passengers can book ticket even after the trip is started and till it reaches the destination.

Contactless ticket/Pass issuance
- Issue mobile PIN/QR CODE for OPEN TICKET for short distance travel
- Issue mobile PIN/QR CODE for long distance reservation services

Contactless-safe User journeys with revenue growth

1. Contactless ticket/Pass validation
   - Ticket QR CODE Scan mechanism
   - Ticket Secret PIN generation

2. Future Ready

3. Maximising Online Inventory
   - Visibility of bus location, seat availability and on-boarded passengers

4. Cash + Contactless Payments
   - Allowing all types of Cards (CC/DC/NCMC)
   - Payment QR code scan availability
   - Entering secret PIN (RTC’s closed wallet)

5. Vehicle Tracking system
   - Online trip start and online trip end

6. Flexible and scalable Infrastructure
   - *Data sync capabilities in case of no internet

7. New Contactless Ticketing Process
   - Issue mobile PIN/QR CODE for OPEN TICKET for short distance travel
Unified Ticketing Solutions – Earlier System Vs UTS

**Previous**

1. **Process of purchasing a ticket**
   - Cash & CC/debit Card transactions
   - Ground staff

2. **Bus staff handing over of Electronic Ticketing Machine (ETM) on shift change, to a fellow colleague.**

**New**

1. **NEW Process of purchasing a ticket**
   - Closed loop Wallet/ UPI (QR code)/Cash payment
   - Less Interaction with ground Staff
   - PIN/QR code based ticket confirmation.
   - Contactless ticket handover to passenger.

2. **Bus staff using own ePOS/mobile phones to issue ticket**
   - Each bus staff use their own mobile phones/ePOS to issue the ticket.

**Ticket issuance:** Cash + Contactless (Wallet/QR CODE UPI based payment & ticket) + Effective utilization of ground staff
Unified Ticketing Solutions – Earlier System Vs UTS

**3. Ticket Validation**
High Contact Ticket Validation Process

- High passenger and Ground staff interaction

**3. Ticket Validation**
Contactless (PIN/QR CODE, long distance & open ticket) + less contact due to scan and validate options.

- Social distancing between ground staff and passengers

**4. Manual Trip sheet submission after journey | Offline seat sale**
Manual Process

- Offline record of trip sheet
- Offline sale of available seats

**4. Realtime, sanitized data sync | VTS | Online Sales and Larger Market share**
Automated and efficient process

- Online trip start/end
- Vehicle Tracking
- Real Time seat availability & enroute seat sale

Larger market share
Unified Ticketing Solutions – Components

1. **e-POS** machines capable to issue tickets, accept cashless payments, push GPS data and ticket transaction data.

2. **Software** for integrated solution to cover OPRS ticketing, Bus Pass, VTPIS, General ticketing.

3. **Solution hosting on cloud environment, Data analytics and MIS reports.**
   
a. Payment Gateway.
   
b. Procurement & AMC of Android POS
   
c. Software Development & AMC of UTS
Unified Ticketing Solutions – Advance Online/Open Ticket Booking

APSRTC Online Portal/Mobile App/B2C - OTA Web Portals

Legends:
- New ticket QR code/secret PIN.

**Booking channel**

1. Web portals, B2C portals

Online Payment by passengers

**Web/B2C portals for open ticket:**

a) The passenger enters Origin, destination, DOJ/time slot, bus type while booking.

b) Customer can board any bus within the selected time slot & matching bus type.

2. Ticket QR code & secret PIN sent to passenger mobile number.

(Open ticket is valid for a predefined time)

Booking confirmation

3. Driver starts trip

Driver on-boards passengers by scanning ticket PIN or QR code

4. Passenger shows the ticket PIN/QR code

Passenger boards the bus

5. After trip start, Driver Views all current bookings

Driver App

Service no.

DOJ

Start Trip

Passenger enters Origin, destination, DOJ/time slot, bus type while booking.

a) The passenger enters Origin, destination, DOJ/time slot, bus type while booking.

b) Customer can board any bus within the selected time slot & matching bus type.
Unified Ticketing Solutions – In Bus Ticketing _ Wallet

1. Driver enters journey details.
2. **Seat fare** & eWallet payment mode displayed on the driver app.
3. Customer also has option to pay through RTC’s closed wallet through OTP validation
4. If driver app does not have internet connectivity cash tickets can be issued seamlessly.

**Bus Stop:** Passenger boards the bus at the bus stop.

**Driver issues ticket**

**Payment by passenger is successful**

**Ticket PIN generated**

**Passengers pay through e-wallet**

**Passenger notes the PIN and takes the seat.**
Booking channel

1. Bus Stop: Passenger boards the bus at the bus stop.

Driver issues ticket

1. Driver enters journey details.
2. **Seat fare & UPI payment QR code** displayed on the driver app.
3. If driver app does not have internet connectivity cash tickets can be issued seamlessly.

Pay passenger is successful

4. Passenger pays through scanning the UPI QR code and pays using Gpay, Phonepe, Paytm, Amazon pay

5. Ticket PIN generated

Legends:

- **New payment QR code**
Unified Ticketing Solutions – Benefits for APSRTC (1/2)

APSRTC

Build a Scalable solution by using existing infrastructure.

Integration of APSRTC Ticketing Services with Grama Ward Sachivayalam.

Realtime Performance monitoring

Staying relevant, Go digital and contactless.
Occupancy Ratio Improvement of 2% will lead to an estimated revenue increase of Rs.150 Crores per annum to APSRTC

e-Wallet : Boosts advance collections through recharges. For example: If 50 Lac passengers store ₹100 each, ₹50 Cr Working Capital gets added for APSRTC.

Payments Acceptance: (a) Cash Payments | (b) New UPI based Digital Payments: Faster revenue into APSRTC bank account | (c) APSRTC Internal e-Wallet: Advance revenue recognition through recharges

e-Bus Pass/Ticket Issue and Validation

Effective Staff Utilization for Ticketing which helps redeployment of Conductors to APSRTC Parcel Service Operations and other Govt. related activities. Estimated 12% reduction of cost of operation will lead to an estimated operational cost saving of Rs.102 Cr per annum to APSRTC
Unified Ticketing Solutions – Revenue Maximization

- Inventory Increase by 15 times
- All digital Payment methods
- Anywhere Anytime booking till last stop
- Result in at least one additional passenger per trip.

One Pax = 2% O.R = 150 Crs
Unified Ticketing Solutions – Cost Reduction

Cargo
- Plans to Reach every village
- Using 10% of the existing conductors

Retirements
- 2% retirements in conductors every year.
- Optimal utilisation of conductors by increasing OMS

Cost Reduction
- Current Conductor wage bill is 70.81 Crs per month
- 12% savings results in 102 Crs per annum
Successful Projects

3. Samagra Bhu Survey

(Andhra Pradesh State Revenue Department)
• Creation and maintenance of records/information relating to land and property ownership is done under the of four different agencies

• **Survey Department**: The Survey department maintains graphical record like Village Maps/FMBs and textual records in RSR/SFA/Diglot register etc.

• **Revenue Department**: Revenue Department maintains the records such as Pahani/Adangal, Record of Rights etc.

• **Registration Department**: It undertakes registration of deeds pertaining to transactions of lands, residential and other properties involving sale, Mortgage, gift etc.

• **Local Bodies**: Local Bodies maintain property registers for the purpose of collection of taxes.
Most of the records earlier are obsolete and does not reflect the actual requirements of the people at present.

As per the public requirements on daily basis, continuous updating of the records is being done and maintained by the Depts. - Revenue, Survey, Registration and local bodies.

Each and every department works on stand-alone basis and thus, lacks coordination among the Depts. These result in that no single record has fulfill the complete title/ownership of the property of public.

Integration of Revenue, Survey and Registration Depts. is highly required because Survey before Registration and Registration before Mutations in the Revenue records is essential.
Samagra Bhu Survey – Need for resurvey (1/2)

The existing survey records viz., Village Maps, Field Measurement Books (FMBs) and Resurvey Settlement Registers were prepared basing on the surveys conducted during 1920s (Ryotwari villages) and 1952 to 1975. There is a huge gap between the textual and spatial data.

Maintenance of records:
• updated at the Village and Mandal levels but have not been updated for patta subdivisions while implementing the RoR Act during 1990s.
• mutating patta transfer cases in revenue records, RoR subdivisions were not implemented

Vulnerability of disputes:
• huge gap between the number of land holdings recorded in RoR and FMB due to non-updation of spatial data.
• record and maintain the distinct boundaries which must also be integrated with RoR and registered instruments.

Inconsistency of spatial and Textual data:
• 49 lakh FMBs
• Though the spatial and textual data is digitized and available online, there is no appropriate integration between these two data and the Registration process.
• The proof of possession is only Tax assessment registers maintained by the local bodies.
VISION

- Resurvey of every individual immovable property
- Issuing Title Certificate by assigning Unique Land parcel Identification Number (ULPIN).

OBJECTIVES

- Efficiency enhancement with the support of IT Environment
- Administer a system of recording conclusive Title, which is secure & enjoys public confidence
- Maintains a single source of truth
- Maintains real time data-Mirror Image of the ground
- Title Registration System
  - The Title holder alone can make transaction
- Provide integrated land related services
  - Through a unified interface, With efficiency and easy accessibility, In a cost effective manner
- Provide Value-added Services in areas like
  - Development planning, Welfare schemes, Land related taxes
Samagra Bhu Survey - Methodology for Conducting Resurvey

- After 100 years, to facilitate for implementation of A.P. Land Titling Act, 2019, Resurvey of entire State has been proposed using advanced/Hybrid surveying technology by name Continuous Operation Reference Stations (CORS), Drones, GNSS (global navigation satellite systems) receivers and Blockchain.

- Total estimated cost of Rs 987.46 crore

- Survey completed in 51 villages on pilot basis

- Work going on in 700+ villages in Phase 1
• Implement a transparent system of property valuation & land record management
• Develop and maintain a Geodetic Control Network for referencing maps
• Maintain all records in integrated digital form in a central repository
• Implement systems & processes for maintenance & auto-updation of data
• Anywhere and anytime transactions
• Establish a sustainable operating model
• A single window to handle land records, including maintenance and updation of maps, survey and registration of properties.
• Clarity over ownership status and these records will be tamper-proof using blockchain technology
• Real-time land ownership records will be available to the citizens.
• Since the records will be placed on the websites with proper security IDs, property owners will have free access to their records without any compromise in regard to confidentiality of the information.
• Greater ease of doing business in the sector, by making it simpler for the developers and buyers to check the authenticity of the land or the property
• The resurvey involves four main inevitable activities apart from the statutory procedures:

• **Demarcation of boundaries:** Practically, on ground there exist enjoyment bunds which are the limitation of land parcel and in addition to that there are bunds built for land, crop & water management. Only the ownership bunds shall be demarcated to record the land parcel as a legal entity. This should be conducted in presence of the land holders only.

• **Measurement:** Using any measuring tool, the demarcated boundaries shall be measured as accurately as possible. Both the positional as well as dimensional accuracy is required.

• **Field Register:** The attributes like lawful enjoyer (reputed ownership), extent, land parcel no., nature of enjoyment, crop details etc. corresponding to each land holding recorded in Adangal (land holding wise Register) shall be written. Though the Surveyor is not competent to decide the Pattadar, he/she shall ensure 100% accurate Registry.

• **Mapping:** After completion of field survey, land parcel map for each land parcel and the village map shall be prepared as per prescribed standards.
Thank you

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