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SenSen Transforms On-Street Parking Compliance in the City of Adelaide

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Executive Summary

The City of Adelaide, in partnership with SenSen Networks, has deployed **Park Safe**, an AI-powered, vehicle-based enforcement solution designed to keep the city moving safely, efficiently, and fairly. Since its introduction, Park Safe has transformed how Adelaide monitors and enforces on-street operations, delivering measurable results in traffic flow, compliance, and officer safety.

Project Snapshot

10,319
Zones covered for enforcement or data collection

02
Vehicle-mounted AI LPR system

21%
Total city expiations issued via Park Safe

0
Staff injuries or incidents

Key Technologies Deployed

- AI-powered License Plate Recognition (LPR)
- GPS-integrated parking control mapping
- Image analytics and alert generation
- Centralised cloud evidence management
- Human-in-the-loop compliance verification
- Privacy-protected data storage
- SOP-governed AI auditing framework

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Innovation Highlights

- First AI-powered on-street system in South Australia
- Real-time detection and geospatial mapping
- Fully paperless enforcement with mailed expiations
- Automatic face and body blurring for privacy protection
- Scalable platform ready for paid and time-limited zones
- Zero staff injuries since launch

"Park Safe isn't just about issuing fines, it's about making our streets safer, our traffic smoother, and our city more accessible.

The technology can take really high quality images while in motion which allows our officers to review that evidence back in the office."

– Steve Zaluski, Associate Director, Regulatory Services, City of Adelaide

Background and Challenge

With over 20,000 on-street parking bays and 390,000 daily visitors, Adelaide maintains one of the highest per-capita ratios of city parking in Australia. Ensuring safety, turnover, and accessibility across this network is a continuous challenge.

Traditionally, the Parking & Information Officers (PIOs) role has required walking 20kms per day and night in varying weather and repetitive manual labour task such as chalk marking tyres. In addition, the nature of the role exposes staff to confrontational situations and instances of physical or verbal abuse while performing the work Council requires of them.

Additionally, vehicles stopping illegally in bus lanes, taxi zones, and residential areas were disrupting public transport and local access, affecting both safety and traffic flow.

The City recognised the opportunity to modernise its compliance operations, not by increasing fines, but by using technology driven enforcement to enhance fairness, consistency, and safety across the city.

"Our technology identifies street signs and other landmarks to see if parked cars are complying with the law. This means that instead of walking the streets and chalking tires, inspectors can simply get behind the wheel and drive. It can also identify dumped rubbish, scooters and bikes, and other hazards, while masking people's faces for privacy."

- Subhash Challa, CEO & Founder, sensen.ai

Solution Implementation

The Park Safe system, powered by SenFORCE technology, integrates AI vision, spatial intelligence, and human verification to deliver high-accuracy, automated enforcement.

Technology Infrastructure

- **Advanced Licence Plate Recognition:** Video capture provides multiple attempts to read plates from various angles,
- **Real-time AI Processing:** All detection and analysis occurs without dependency on cellular connectivity ensuing uptime,
- **RTK GPS positioning:** Centimetre-level accuracy to pinpoint vehicle location within mapped enforcement zones to avoid false positives,
- **Vehicle Environment Mapping:** Automated digitisation of kerbs, signage, and permitted parking areas

This hybrid design ensures automation where it adds value and human discretion where context matters.

Operational Workflow

All determinations are made by trained officers, ensuring human judgment remains central while leveraging AI for precision and efficiency.

1. Automatically scans mapped micro-zones as the vehicle moves,
2. The system cross-references detected vehicles with permitted parking rules,
3. High-quality imagery and GPS data are logged for each event,
4. Trained PIOs verify potential offences and decide on expiation,
5. Expiations are mailed with photographic proof and review rights,
6. Citizens can challenge fines online, ensuring transparency and accountability

Results and Impact

The implementation of SenFORCE has delivered remarkable outcomes across multiple performance indicators:

Improved Safety and Workforce Wellbeing

- Officers can now operate from within vehicles, eliminating exposure to street-level confrontations and weather risks
- In over four years of operation, **zero** staff injuries or incidents recorded
- The shift has created opportunities for skills development in data-driven enforcement and digital compliance management

Operational Efficiency

- City-wide coverage achieved with existing staffing levels
- Focus on high-impact enforcement zones (e.g., bus lanes, no-stopping) boosted efficiency
- Estimated 21% of all city expiations now issued via Park Safe (FY 2024–25)
- Automated workflows enable redeployment of resources toward education and community engagement

Traffic Flow & Compliance Gains

- Bus lane expiations increase from 149 to 279 per month since Park Safe deployment
- Repeat offences declined, indicating improved compliance
- Bus travel speeds increased and commute times decreased, as confirmed by the Department of Infrastructure & Transport (DIT)
- Public Transport SA attributed these improvements to clearer bus lanes and fewer obstructions, enhancing commuter experience

Community Outcomes

- The system has supported positive engagement with stakeholders, leading to improved kerbside management and new dedicated loading zones
- Clear communication and education campaigns including media coverage via 7NEWS Adelaide, ensured transparency throughout rollout phases

Data & Insights

Enhanced collection of parking occupancy and compliance metrics, providing an evidenced-based approach to future decision making.

DIT commented: “Keeping bus lanes clear allows buses to move faster and more reliably… a better overall public transport experience and reduced congestion.”

Technical Innovation and Scalability

SenFORCE's technical capabilities extend beyond basic licence plate recognition:

Advanced Features

- **Vehicle Detection Priority:** The system eliminates false detections due to unintended character reads, ensuring comprehensive coverage
- **Contextual Evidence Capture:** Multiple camera angles provide detailed visual documentation of violations
- **Privacy Protection:** Automatic face blurring and secure data handling comply with privacy regulations
- **Voice Command Integration:** AI co-pilot features allow hands-free system operation

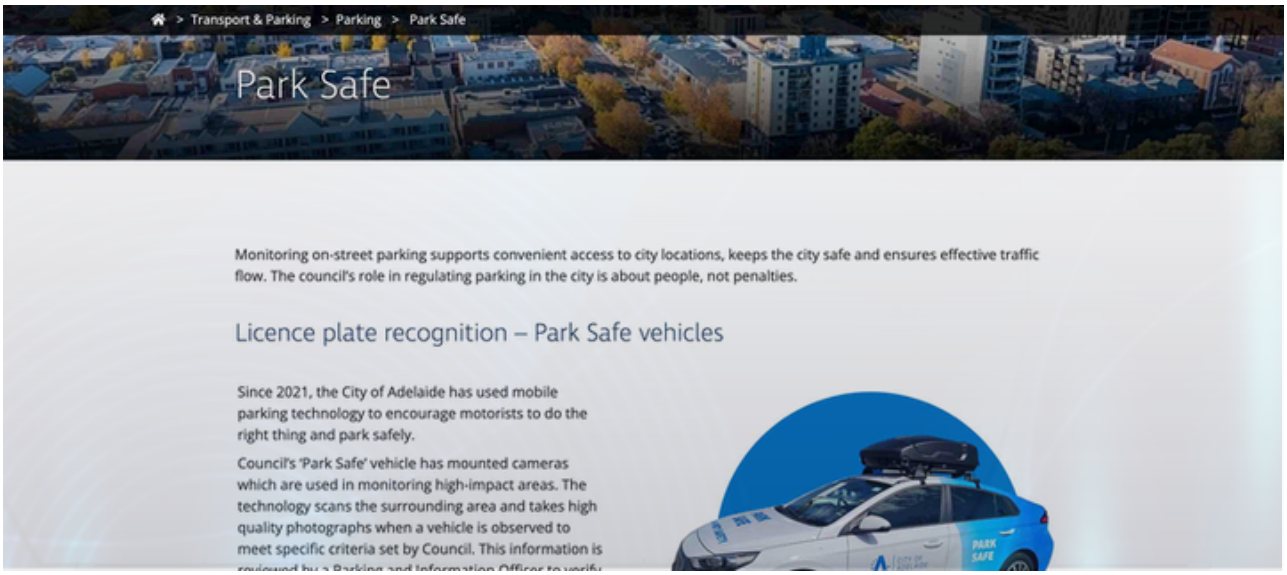
Expandable Applications

Currently enforcing Bus Lanes, No Stopping, Taxi Zones, Residential Zones, and Park Lands.

Expansion opportunities include:

- Paid parking (high-demand retail and business districts)
- Time-limited parking (to improve turnover)
- Park Lands perimeter compliance (protecting public spaces)

The subscription-based model ensures continuous updates, cloud upgrades, and hardware scalability, allowing the system to evolve alongside urban policy priorities.



Since 2021, the City of Adelaide has used mobile parking technology to encourage motorists to do the right thing and park safely.

Council's 'Park Safe' vehicle has mounted cameras which are used in monitoring high-impact areas. The technology scans the surrounding area and takes high quality photographs when a vehicle is observed to meet specific criteria set by Council. This information is reviewed by a Parking and Information Officer to verify whether an offence has occurred.

If a trained Officer reviews the evidence and confirms a breach has been committed, an expiation is posted out to the vehicle's registered owner, outlining the details of the offence with photographs and other relevant information.

READ MORE

In the Media: As reported by 7News

A new high-tech parking inspector will soon be patrolling the CBD scanning cars and handing out fines like never before.

New hi-tech parking fine technology being trialled in Adelaide CBD

New high-tech parking inspector to dish out fines to Adelaide drivers

Future Considerations

Park Safe's success has paved the way for a new era of digital enforcement in Adelaide:

- **Predictive enforcement insights:** Aggregated data is informing where non-compliance hotspots occur, supporting proactive city planning
- **Cross-sector benefits:**
  - **Public transport:** Bus lanes kept clear
  - **Taxi sector:** Improved kerb access and reduced illegal stopping
  - **Tourism industry:** Dedicated loading bays established after constructive consultation
- **Next frontier:** Integration with broader city data platforms for mobility analytics, parking availability forecasting, and AI-driven traffic optimisation

The City of Adelaide's Park Safe initiative, powered by SenSen Networks, represents a landmark achievement in AI-enabled municipal enforcement.

By combining intelligent automation with responsible human oversight, Adelaide has delivered:

- Safer working environments for enforcement officers,
- Smarter compliance systems that enhance fairness and accuracy,
- Smoother transport networks benefiting residents, visitors, and commuters alike