Feb 13 Class Notes- Smart Cities

Smart Cities & AI

* Smart cities use technology to improve urban living, making things more sustainable, convenient, and accessible for the public.
* Smart Traffic Management
* Real-time traffic monitoring: AI can track congestion by following how long it takes a car (using its license plate) to reach a certain point.
* Adaptive traffic signals: Traffic lights can be adjusted based on real-time conditions. For example, in 2018, when VIPs (including the president) visited Houston, highways were closed, forcing cars to take alternate routes.

Preventive Monitoring & AI

* Smart home monitoring: More people are using AI-powered security systems, like internet-connected front door cameras.
* Energy-efficient buildings: AI helps homes and buildings save electricity, cutting costs and reducing energy waste.
* Public safety & surveillance: AI-powered security cameras help monitor crime and prevent incidents.
* Predictive policing: Law enforcement uses AI to analyze crime patterns based on location, diversity, and population. This helps decide where to send police resources.

AI in Recycling & Waste Management

* Recycle tracking: AI helps track recycling habits and reduce waste.
* Example: In Arizona, a family of eight smuggled 178 tons of empty beverage containers into California’s recycling program, which offers financial incentives for recycling. Since the program was only for California residents, they got caught and were fined $7.6 million. This fraud was exposed when the number of recycled bottles reported was way higher than what the state actually consumed. Eventually, 270 people were arrested for similar scams.

Key AI Use Cases in Smart Cities

* Traffic management: Real-time monitoring and adaptive signals.
* Energy efficiency: Smart grids and AI-powered buildings.
* Public safety: AI surveillance and predictive policing.
* Waste management: Smart bins and AI-based recycling tracking.