The Usability of Unmanned Aerial Vehicles (UAVs) for Pedestrian Observation

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Existing Methods

**Manual Observation**
- Portable
- Comprehensive
- Labor-intensive
- Not reliable

**Video Recording**
- Accurate & comprehensive
- Image processing & validation
- Most expensive
- Prone to theft & malfunctions

**Automatic Counting**
- Long-term
- Lower cost
- No behaviors or attributes
- Undercounting
New Tool: Drone (or Unmanned Aerial Vehicles)

- Human observation + Video recording
  - Larger areas: covering larger areas in a shorter period
  - More accurate & reliable: with post data validation
  - More informational: behaviors, attributes, spatial patterns

- Concerns
  - Short-term flight | Safety | Privacy
Data Collection & Results

Procedure (approved by IRB & UDOT)

1. Set a flight path
2. After taking-off, set waypoints
3. Two passes up & down
   • 5 mph
   • 50-70 feet
4. Data coding
   • Total pedestrians
   • Gender / Age group

Future applications

• Pedestrian traffic modeling
• Pedestrian mapping
• Risk analysis

Results: high reliability compared to on-the-ground observation & Google Street View
Thank You