Local ITS Case Study
City of Montgomery, Alabama

Alabama Section ASCE

Montgomery Branch
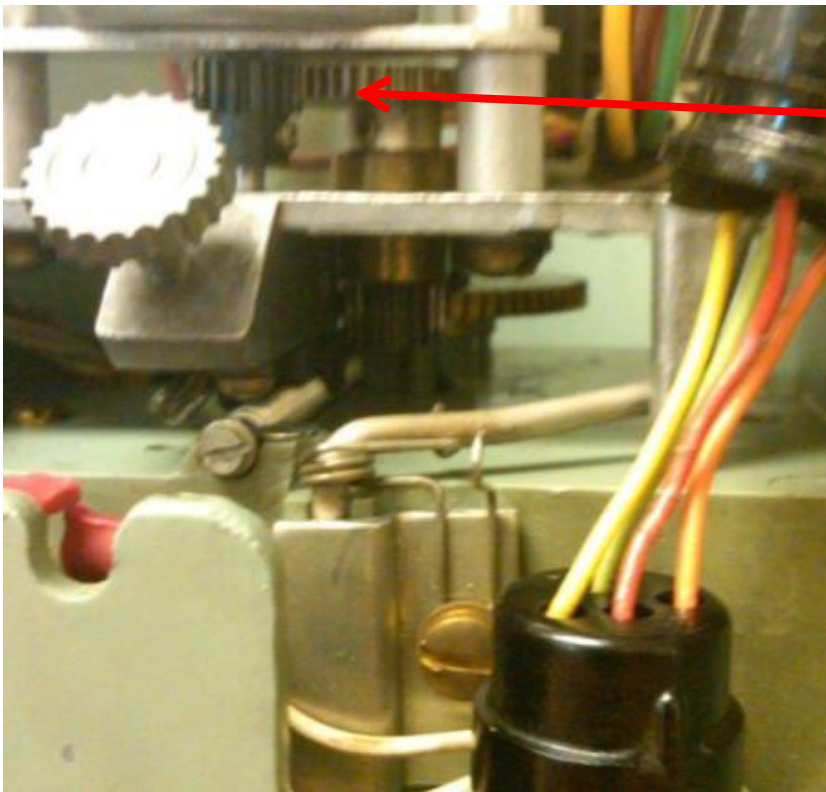
August 12, 2014

Montgomery, AL
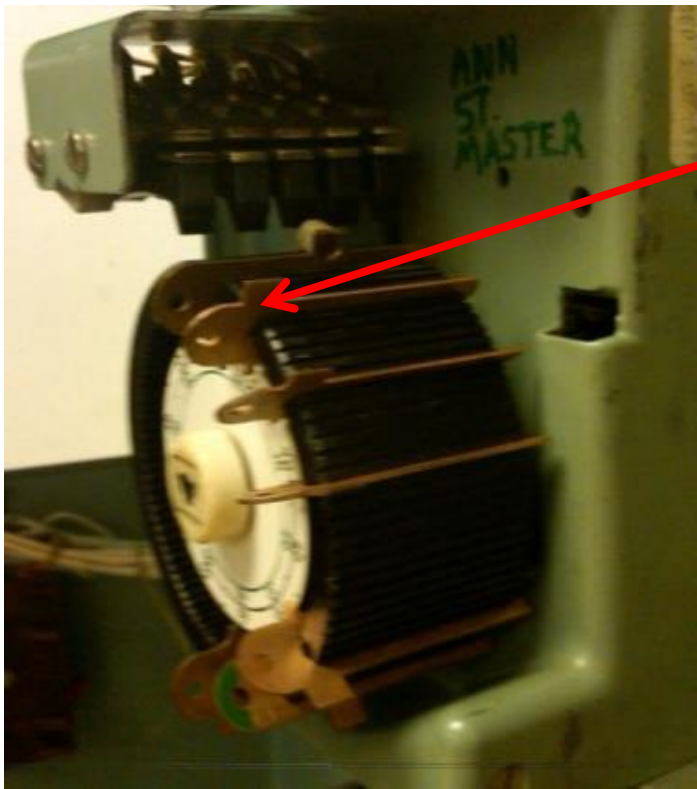
Presentation Will Describe

- Background
- Work Stations
- Video Detection Cameras
- Pan, Tilt & Zoom Video Monitoring Cameras
- Installation, Programming & Maintenance

Background - Then

Brass Gear
Used to Set Cycle Length
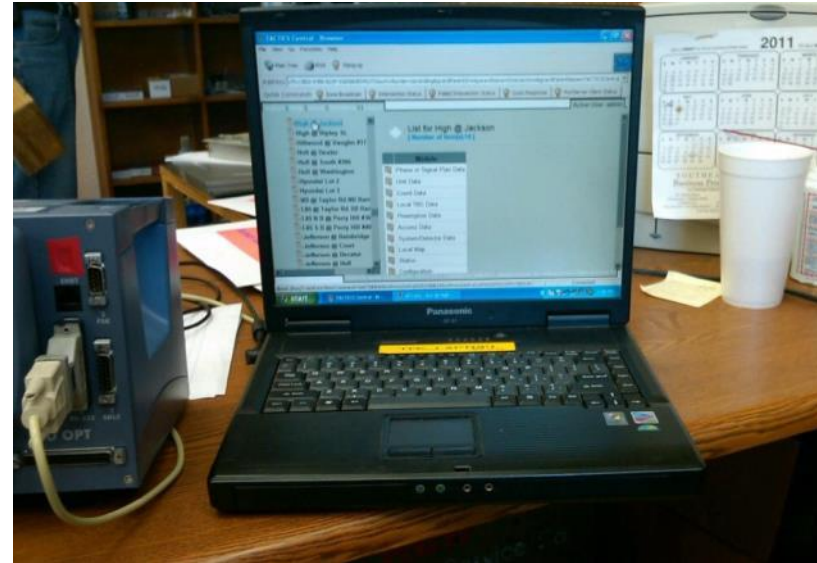
Background - Then

Keys in Percentage Setting Used to Set Intervals and Split Times

Background - Then

Three Dials
Used to Set Time of Day
Plans
Usually Inbound Flow,
Balanced Flow and
Outbound Flow
Each with Its Own Keys
All on Same Cycle Length

Background - Now

Problems and Solutions

Retiming the Yellow Change and Red Clearance
Intervals of a two-phase signal

Vehicle Basic Timing

Phase	1	2
Min. Green	0	28
Passage	0.0	1.0
Maximum 1	0	30
Maximum 2	0	30
Yellow Change	3.0	4.0
Red Clearance	0.0	0.0

Vehicle Basic Timing **Vehicle Density Timing** **Pedestrian Timing** **Ge**

Phase	1	2	3	4	5	6	7	8
Min. Green	0	28	0	7	0	0	0	0
Passage	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0
Maximum 1	0	30	0	19	0	0	0	0
Maximum 2	0	30	0	19	0	0	0	0
Yellow Change	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0
Red Clearance	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0

Video Detection Cameras

- First installed at Bell St (Maxwell Blvd) and Dickerson Ave
- Four vendors considered
- Can separate lanes of an approach
- Also used for
  - Presence detection for Stop Line detection
  - Pulse detection for main approach

Video Detection Cameras

Problems and Solutions

- Fog Hinders Pixelation Changes for Video Detection

Problems and Solutions

- Thermal Detection not affected by fog or glare for this location of Ann St and Poplar St

Twenty-two Workstations

- ALDOT
- City Engineering
- City Hall
- EMA & 911 – Eight station
- Fire Dept – Four stations
- Police Dept and Two Sub-stations
- Traffic Engineering Dept – Four stations

Pan Tilt & Zoom
Video Monitoring Cameras

- First Installed
  - Madison Ave & Jackson St
  - First installed in Alabama
- First vendor was Philips
- Later included Axis, Bosch, Cohu, Pelco and Video Alarm
- Features
- Limitations

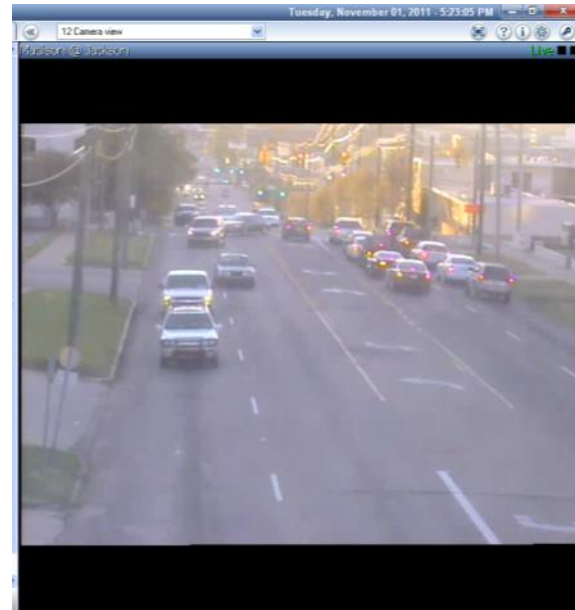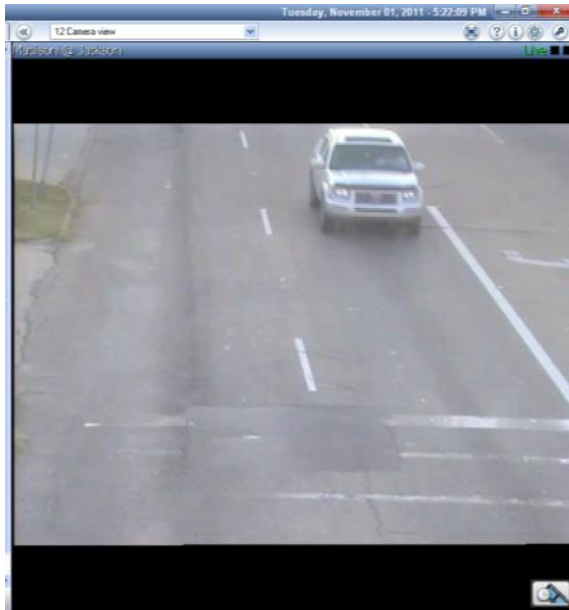# Pan, Tilt & Zoom Cameras
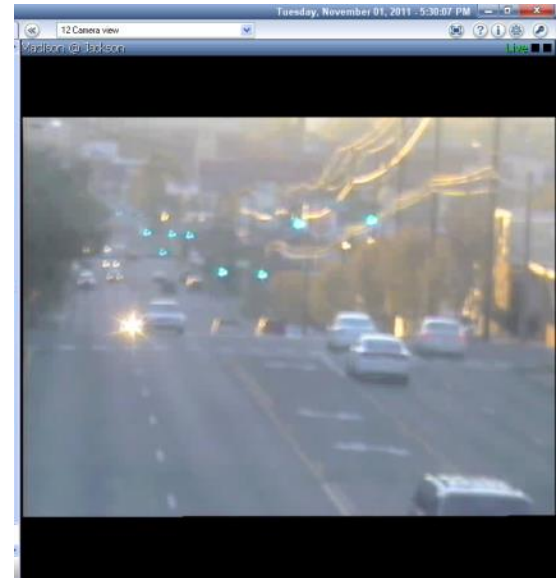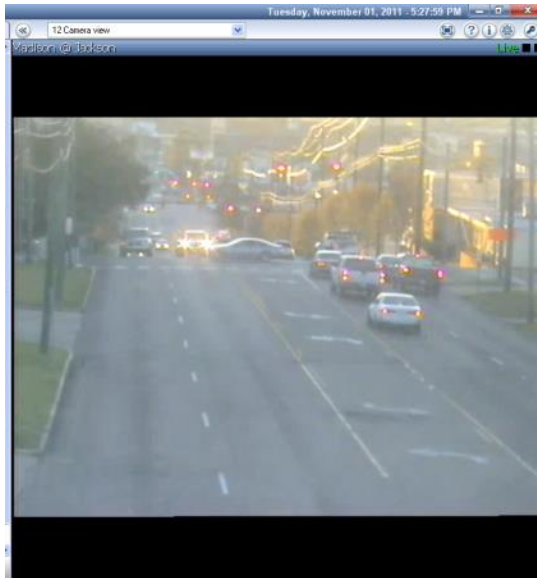
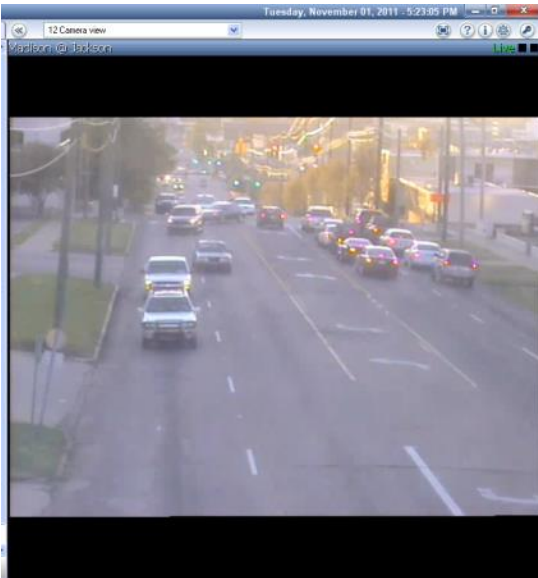# PTZ Used to View Construction Cramton Bowl Expansion

Pan, Tilt & Zoom Cameras
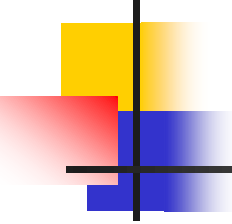
Pan, Tilt & Zoom Cameras

Pan, Tilt & Zoom Cameras

Special Features Developed
Carousel

Installation, Programming & Maintenance of Our ITS System

- Cameras
- Encoders
- Ethernet Switch
- Fiber Optics
- Tactics Software
- Problems and Solutions

Installation, Programming & Maintenance of Our ITS System

- Infrastructure
  - Common Controller
  - Programming Features
- Communication System
  - Twisted Pair Copper Wire
  - Fiber Optic Cable
  - Radio Communication
  - Wireless Cloud

Installation, Programming & Maintenance of Our ITS System

- System Status
  - 385 Signalized Intersections
  - 400 Video Detection Cameras of City
  - 250 Cameras on Blvd SCATS Project
  - Communications to 270 Intersections
  - Additional 25 in the near future
  - 46 Pan Tilt Zoom Cameras
- Other options being considered
  - Radar Detection
  - Wireless Magnetometer

Video Detection Example

- Atlanta Hwy & Perry Hill Rd

Video Monitoring Example

- Atlanta Hwy & Taylor Rd

Video Enforcement Example

- Ann St & Highland Ave

Summary

- Video Detection
  - For traffic signal timing
  - Done by Traffic Engineering Dept
- Video Monitoring
  - For evaluation and incident response
  - Done by Traffic Engineering Dept
- Video Enforcement
  - For red light running & speeding
  - Done by vendor for Police Dept

ITS Applications
City of Montgomery Summary

Any Questions?   Call Bubba…

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