

REPLAYER

Collaborative evaluation
of mobile applications

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EQUATOR ÷



Evaluating Mobile Technology

- Mobile technology is an increasingly significant part of everyday life
- Observation and understanding of the use of such technology is complex
- Direct interaction with several types of media
- Mobile devices and their use can be difficult to observe

Our Approach

- Support for collaboration between social scientists and computer scientists
- Cross platform distributed collaborative analysis across multiple computers and displays
- Tools and techniques for combining heterogeneous data

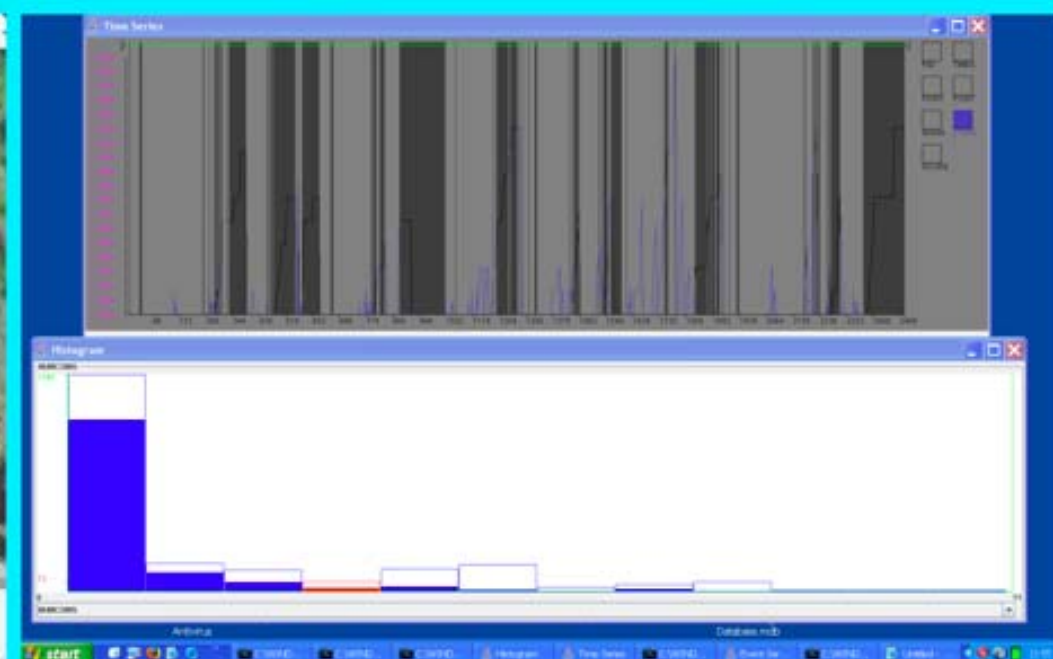
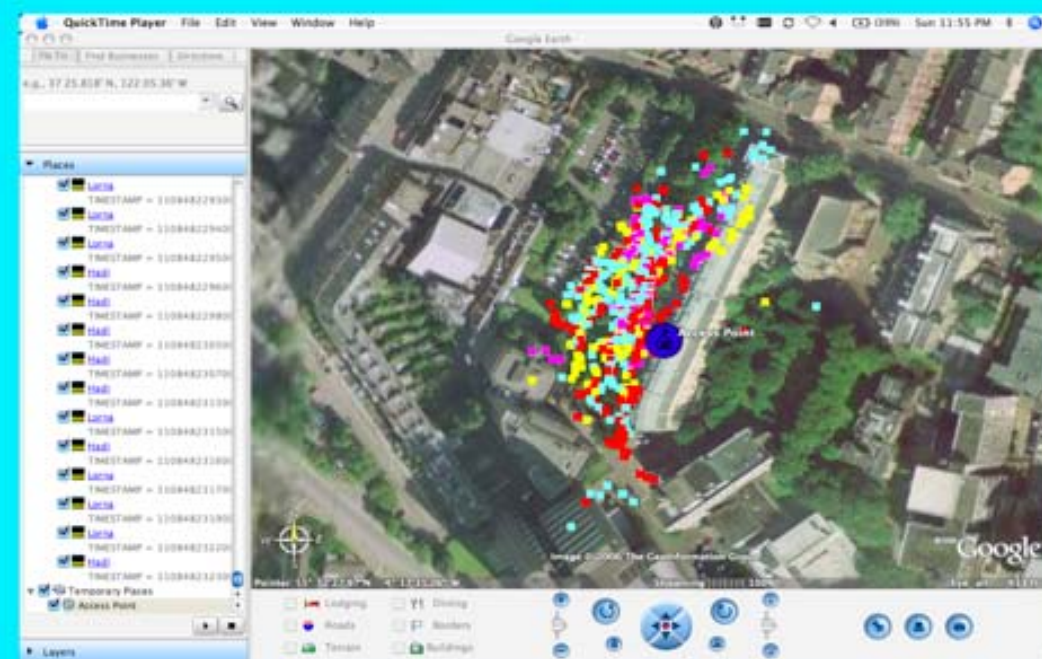
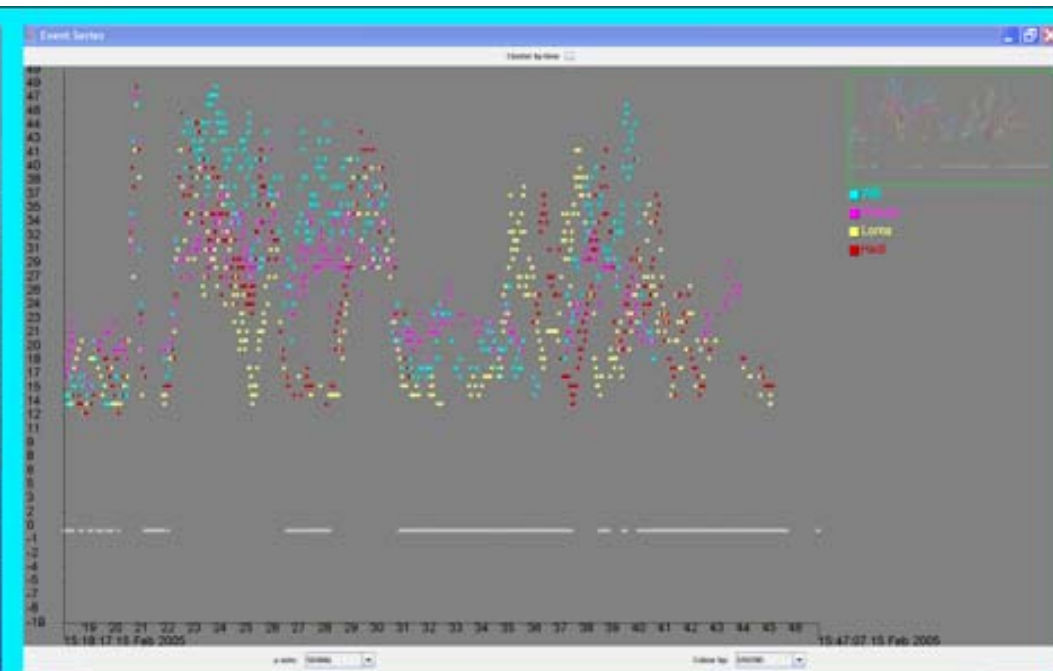
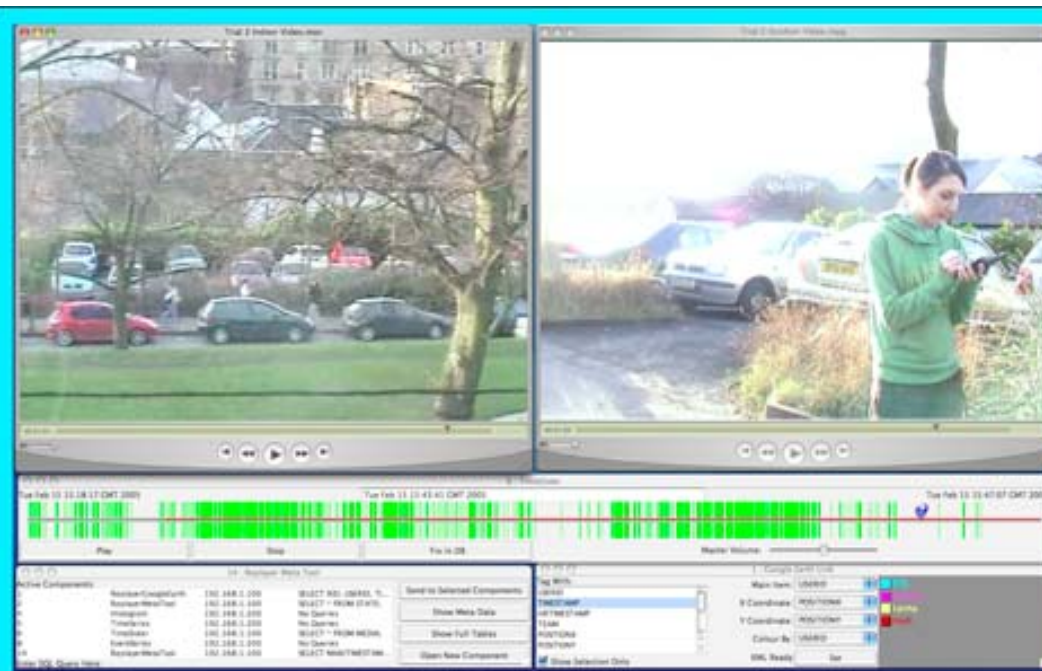
Replaying What Then?

- Video
- Audio (field notes and participant audio)
- Recorded system data (textually and graphically)
- Post hoc data (field notes, interviews, questionnaires)
- Location information

Extensible Component Toolkit

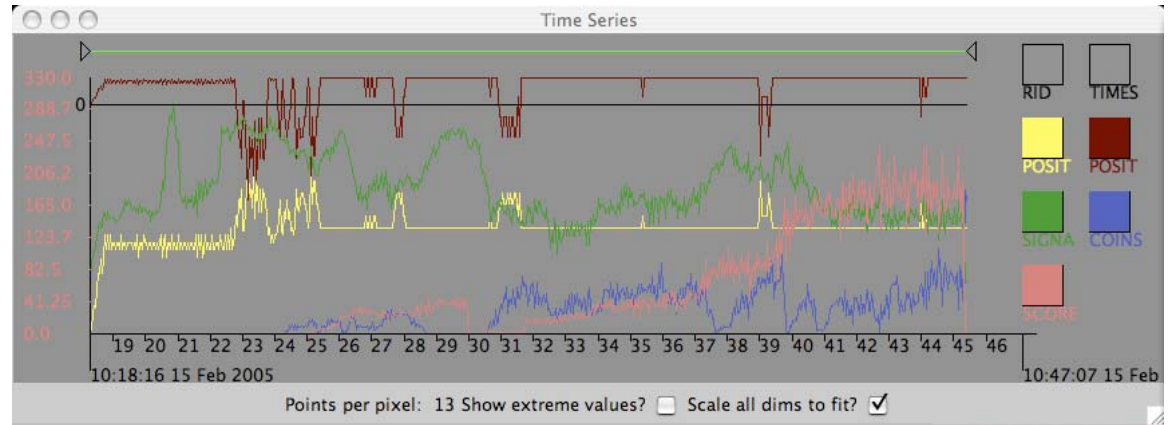
- Client-Server architecture
- Each visualisation component is a separate process - communication through the server
- Easy to create or download new components and log parsers while running the toolkit
- Bridges to third party software where appropriate

Replayer's Interface

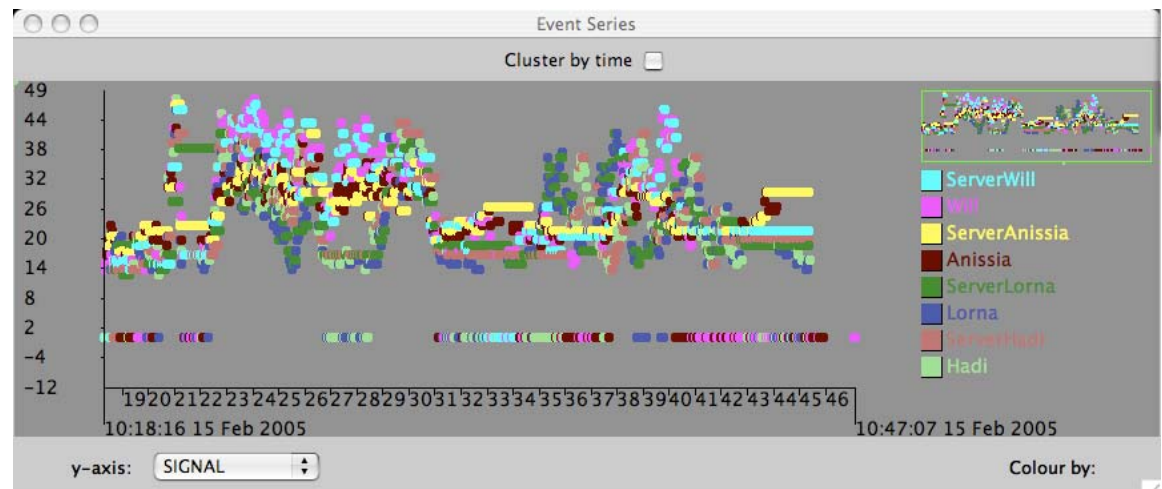


Components

- Time Series

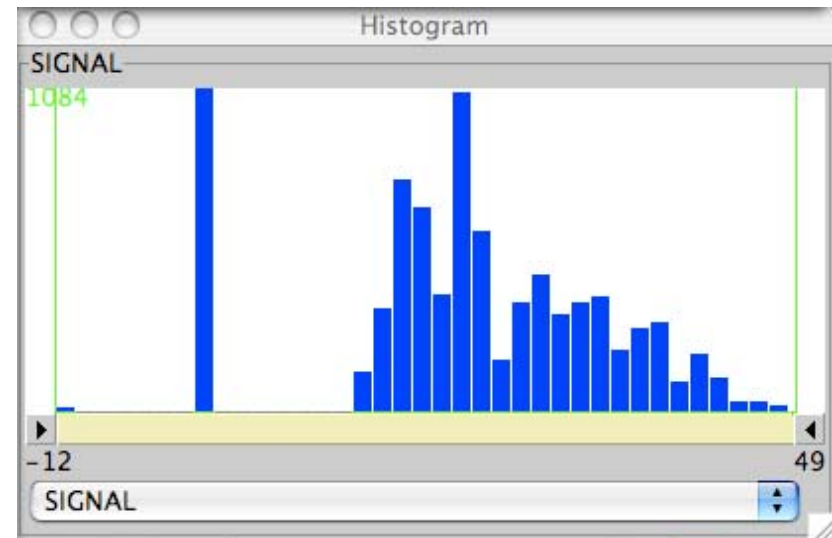


- Event Series



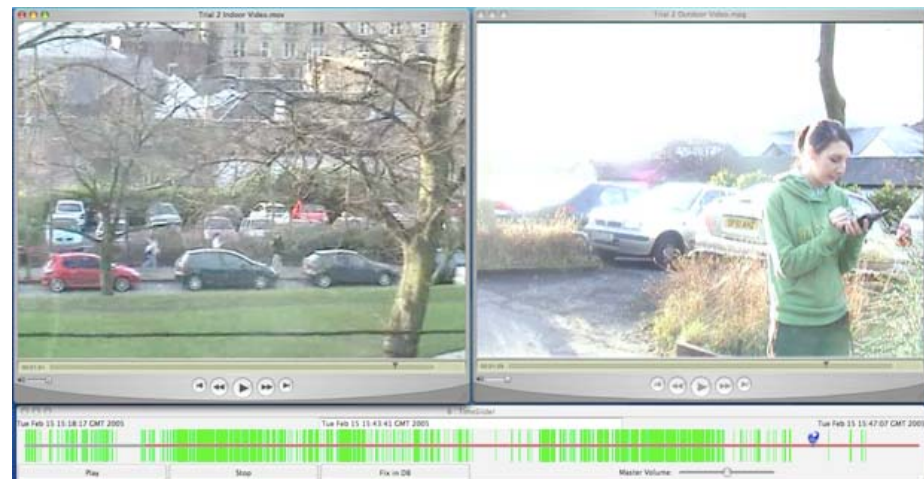
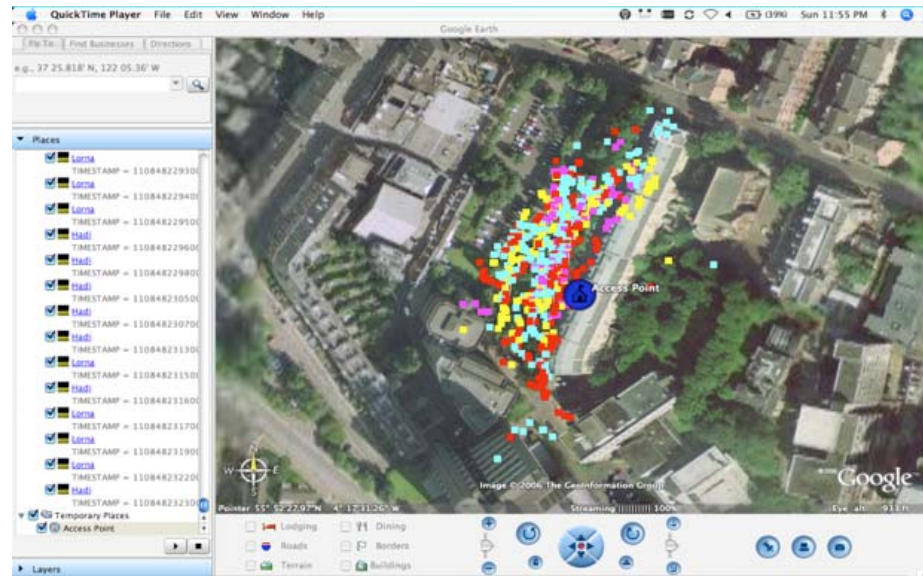
More Components

- Histogram
- Force Directed Graphs



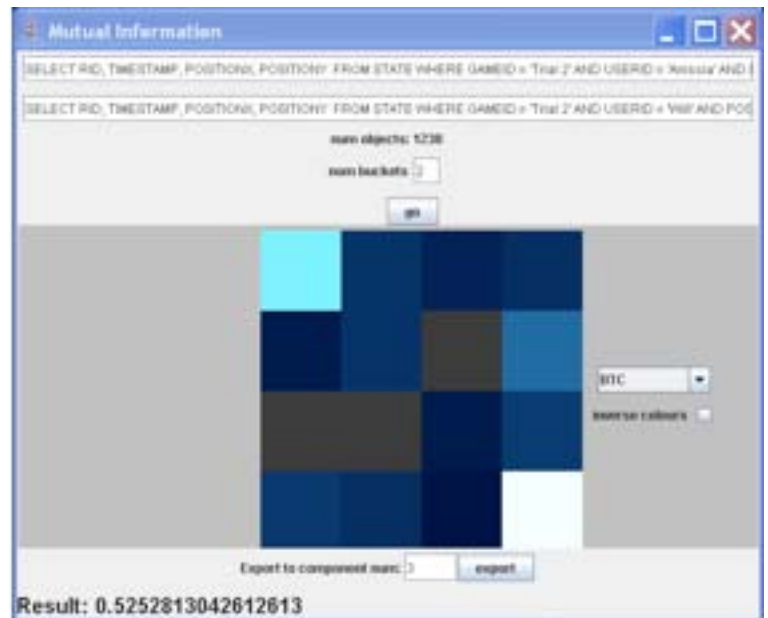
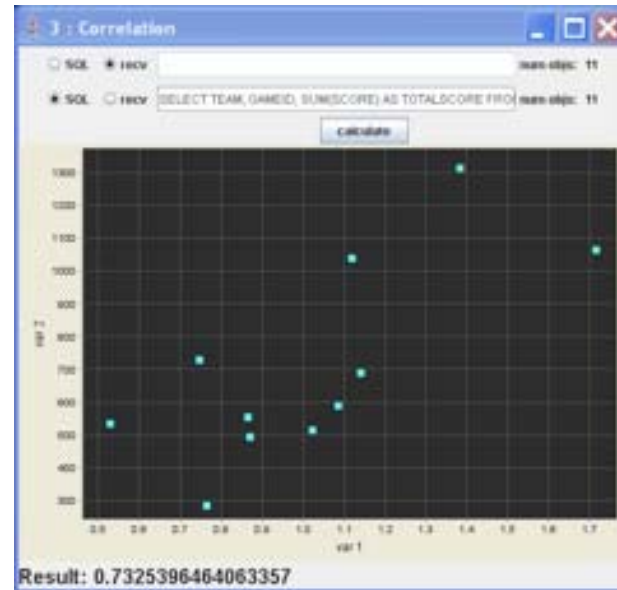
More Still

- Maps
(Google Earth)
- Maps
(SMAPS)
- Media Bridge



Other Stuff

- Correlation
- Mutual Information
- Numerical Analysis
- Text Link

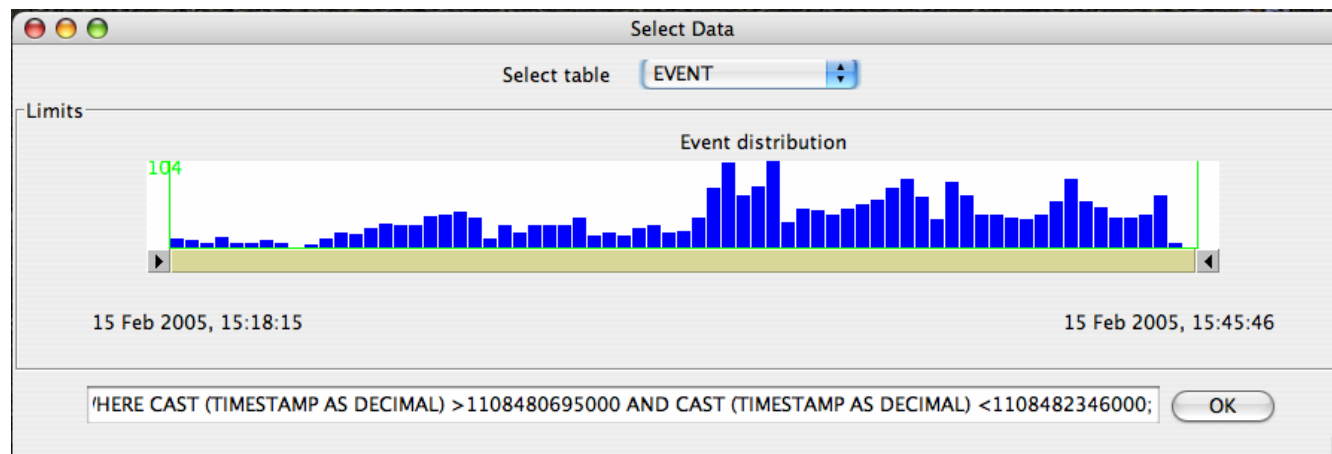


Brushing Between Components

- Any selection in a component results in a coordinated selection in each other live component
- Selections may be temporal, spatial or based on some other factor
- Media clips and other frame based visualisations will jump to the first point of a selection

SQL Driven

- Visual means of querying are supported



- A knowledge of SQL offers much greater possibilities for complex queries

The Meta Tool

- Runs on each active computer
- Each meta tool is synchronised
- Shows the locations and current queries of each running component
- Shows screenshots of each display
- Allows opening of new components and sending of data to others
- Allows searching/browsing of the raw data

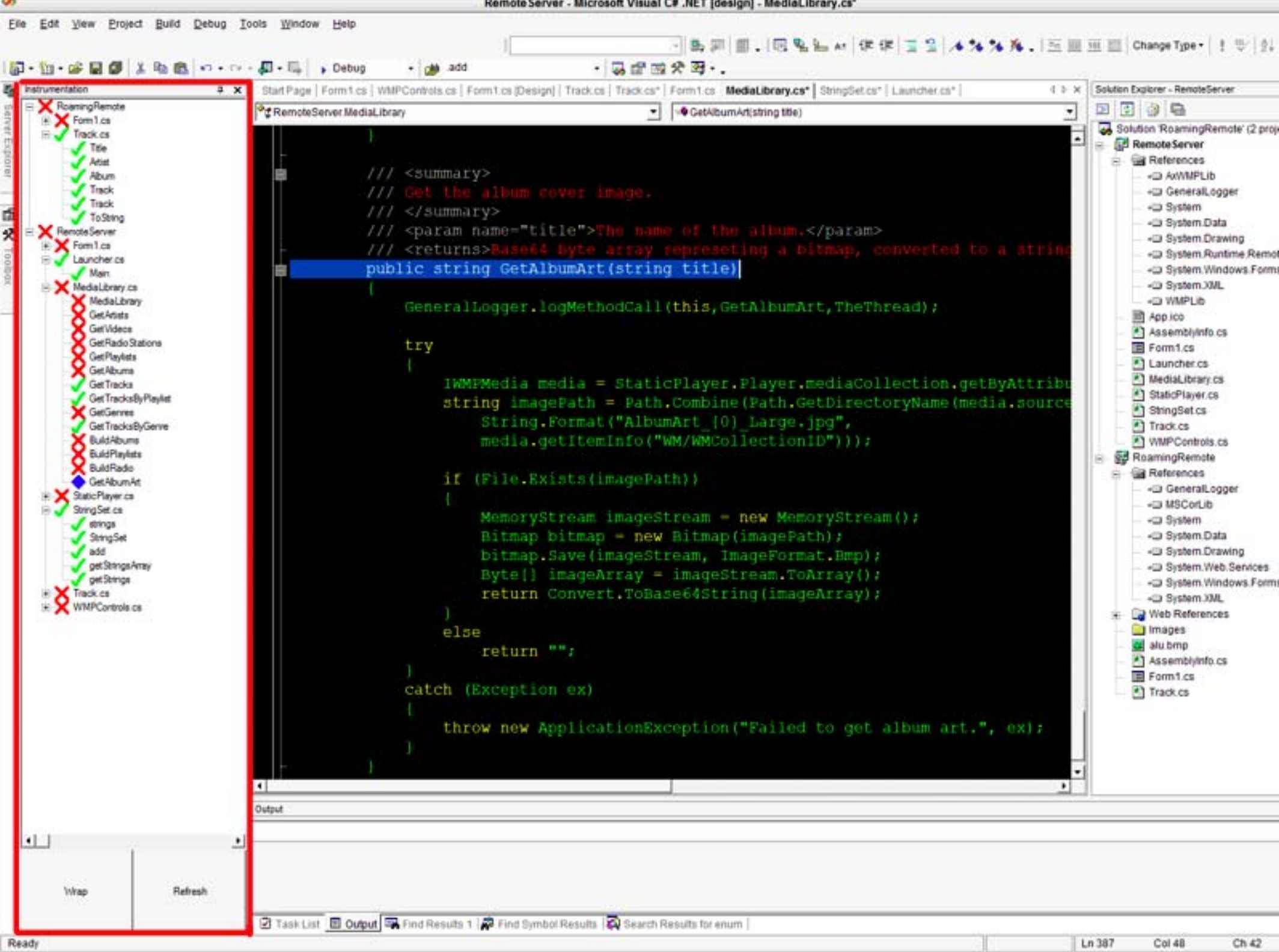
Synchronisation

- Media is synchronised in a lo-fi manner using a tool called QCCI
- All clocks within a system must be synchronised, or at least have known offsets



Where do these logs come from?

- Designed to handle logs in Replayer Markup Language (RML)
- These can be generated using the Instrumentor add-in to Visual Studio
- Can also parse legacy logs by writing a new parser - a template is provided



What was that about third party programs?

- Replayer makes no attempt to re-invent the wheel
- In general programs specifically designed to do one thing do it well - eg. QuickTime, Google Earth
- Replayer bridges to such applications where possible

Scenario of use - Shakra

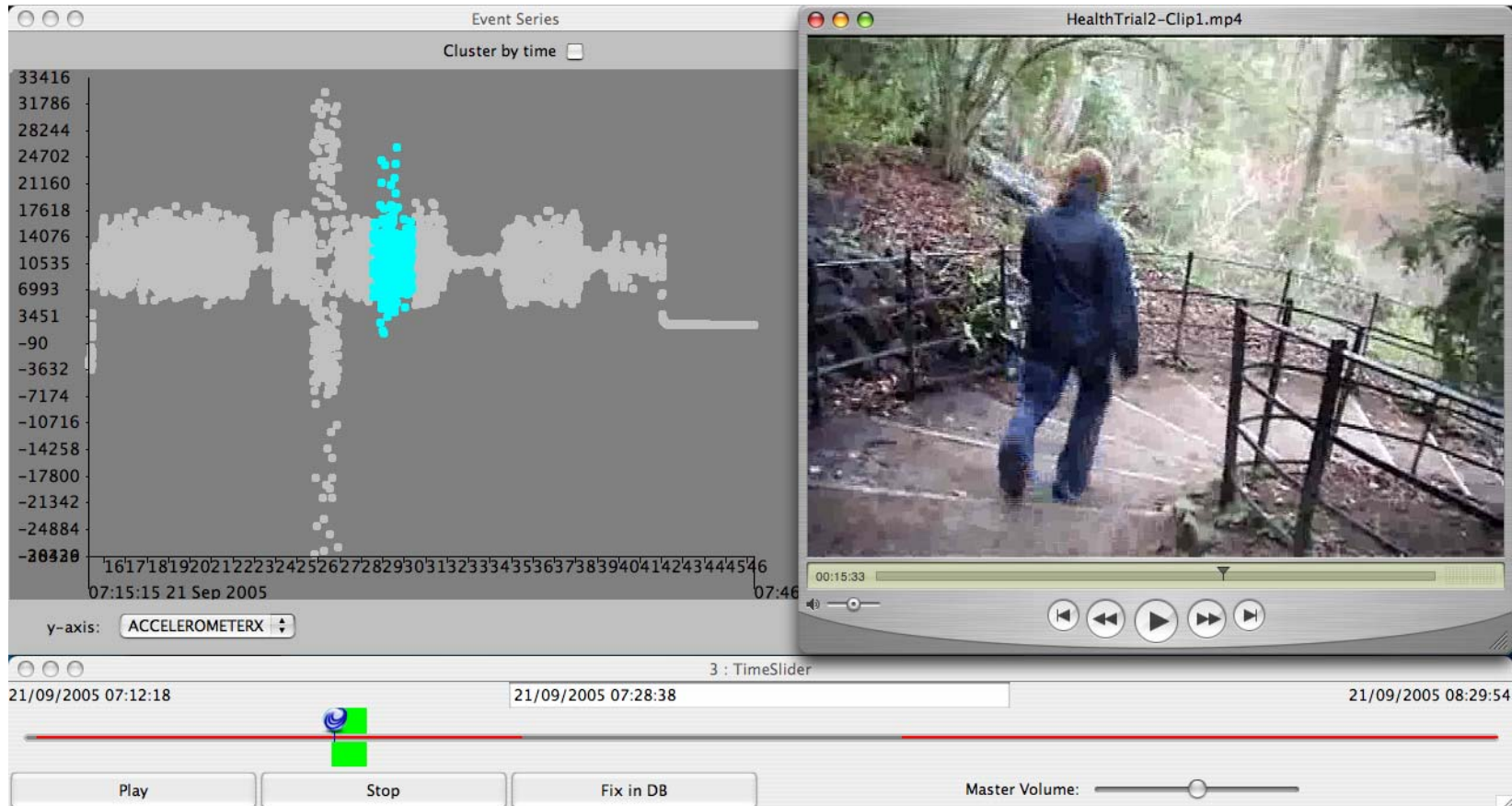
- Assessing accuracy of system judgements



Walking Still Driving

Scenario of use - Shakra

- Combining views to clarify ambiguous data



Conclusion

- Observation and understanding of mobile technology is complex
- Several schools of thought eg. Qualitative/Quantitative
- Replayer tries to bridge this divide
- Encourages collaboration between evaluators from both sides of this gap
- Creation, collation, synchronisation, and visualisation of heterogeneous data.

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