PALM – Experience
Public Service

Capabilities and experience in support of Public Service Programs
PALM Associates, Inc.

June 2017

Summary

- PALM specializes in all aspects of communications, networking and security
- Directly applicable experience in these areas
    - Energy Management
    - Real time data acquisition
    - Network monitoring and reporting
    - Robotics
- Development using a variety of sensors – GPS, accelerometer, touch screen
- PALM is an expert member in the NIST Smart Grid CyberSecurity Working Group

Capabilities

- Variety of Real Time OS
  - Green Hills
  - zRex
  - Tiny51
  - VxWorks
- Mobile / Wireless Applications
  - Handset platforms: Windows Mobile, Symbian, Brew, iPhone, Java
- Embedded system development, both server and client
- Implementations using key protocols
  - RS 485
  - ZigBee
- Many small & embedded platform developments
- Low level development, test and integration with Cygnal, Lauterbach, Jtag, Freescale, etc.
- Sensors used – GPS, accelerometer, touch screen

Value Proposition

- PALM brings a wealth of experience in all aspects of mobile communications – a key element in Smart Grid deployment

- Deep knowledge of the relevant communications technologies results in a short time to market for development

- Familiarity with small, embedded platforms means our staff are comfortable in the development of efficient, power and size sensitive applications – no complex re-implementation necessary after exposure to the platform used for deployment

- Expert consulting to key Smart Grid providers gives PALM engineering a unique perspective on the requirements and architectural solutions available.

Charatable Foundation Project

- This demonstration serves to exhibit the basic data collection and alerting capability of handset data collection when associated with the Data Collection service
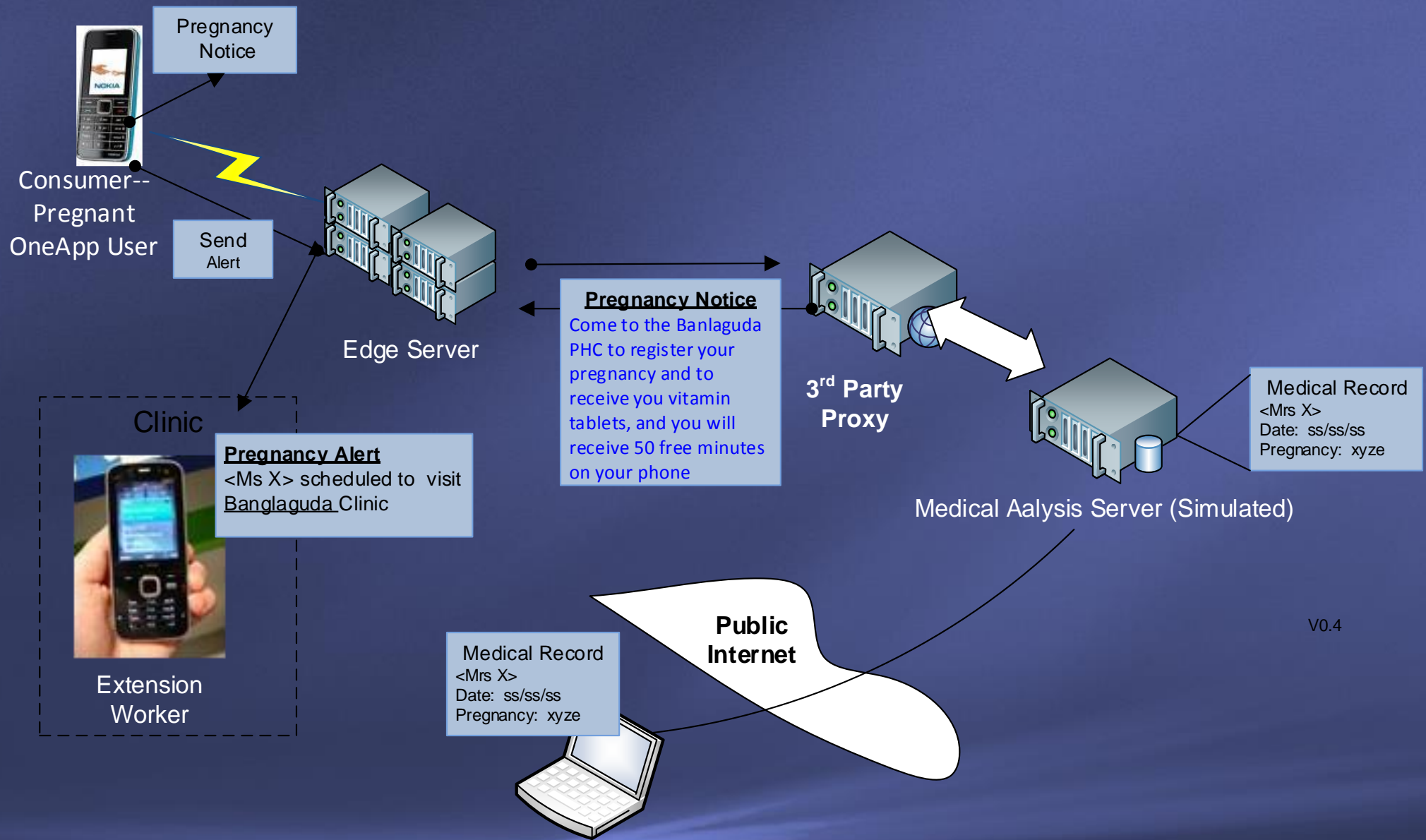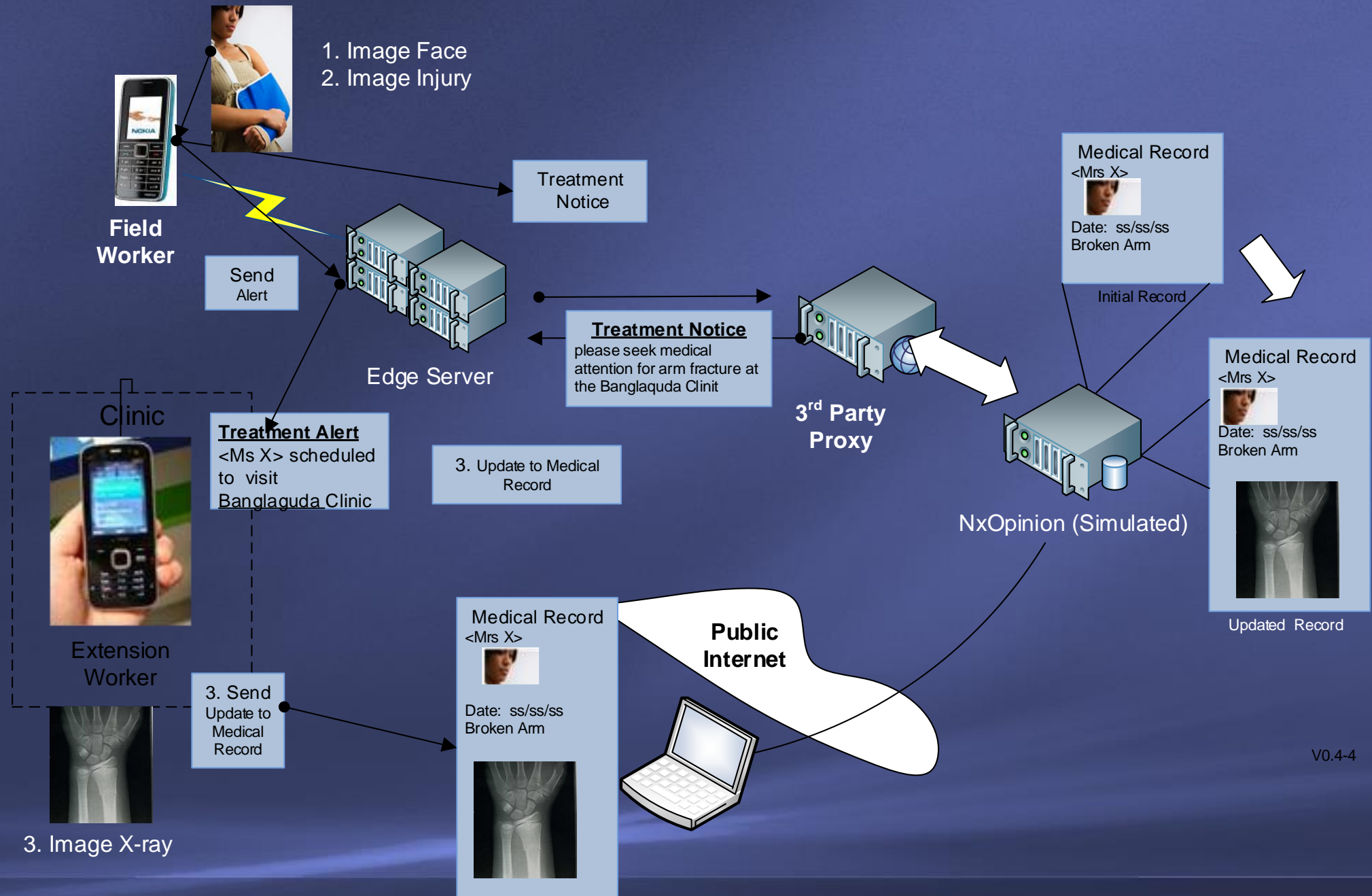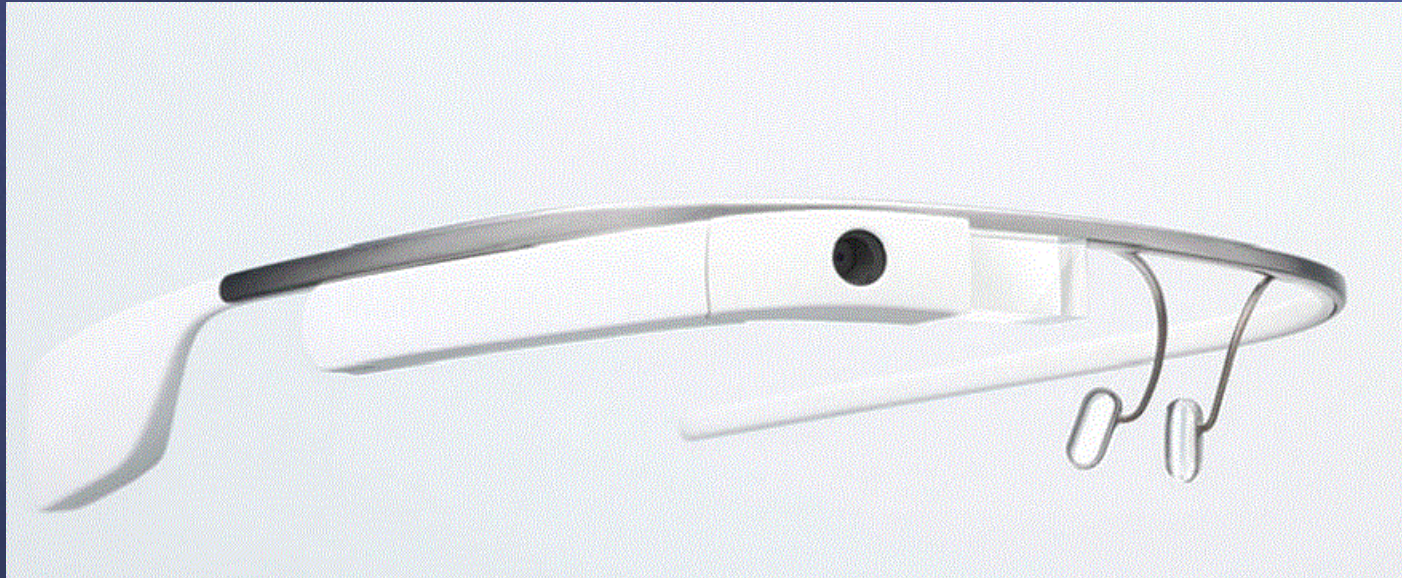- Deployment is to developing countries

Architecture

Pregnancy Notice

Consumer--
Pregnant
OneApp User

Send Alert

Edge Server

Clinic

Pregnancy Alert
<Ms X> scheduled to visit Banlaguda Clinic

Extension
Worker

Pregnancy Notice
Come to the Banlaguda PHC to register your pregnancy and to receive you vitamin tablets, and you will receive 50 free minutes on your phone

3rd Party Proxy

Medical Aalysis Server (Simulated)

Medical Record
<Mrs X>
Date: ss/ss/ss
Pregnancy: xyze

Public Internet

Medical Record
<Mrs X>
Date: ss/ss/ss
Pregnancy: xyze

V0.4

Image Exchange

1. Image Face
2. Image Injury

Field Worker

Send Alert

Treatment Notice

Edge Server

Treatment Notice
please seek medical attention for arm fracture at the Banglaquda Clinit

3rd Party Proxy

Clinic

Treatment Alert
<Ms X> scheduled to visit Banglaguda Clinic

3. Update to Medical Record

Extension Worker

3. Send Update to Medical Record

3. Image X-ray

Medical Record
<Mrs X>
Date: ss/ss/ss
Broken Arm

Public Internet

NxOpinion (Simulated)

Medical Record
<Mrs X>
Date: ss/ss/ss
Broken Arm
Initial Record

Medical Record
<Mrs X>
Date: ss/ss/ss
Broken Arm
Updated Record

V0.4-4

Conclusion

- Validation of text and image entry from field workers using basic handsets was achieved

- Formatted text and image data capture is possible with scripted sessions even with inexperienced workers and basic handsets

- Correlation, analysis and data reduction possible when presented to medical analysis software

Google GLASS ® at PALM Associates, Inc.

Technologies and Product Initiatives

Technology Areas

Wearable Devices

Applications in the following:

Medical instrumentation

Personal health

Mobile Health

Physician's Display

Mobile Device Security

Information storage and protection
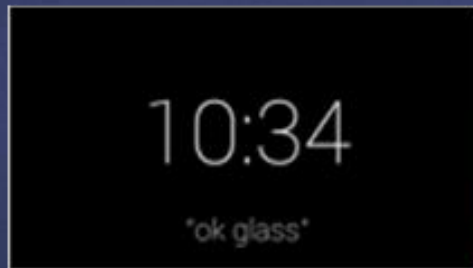
Mobile security (see NIST 800- series)

BYOD

Applications in medical informatics
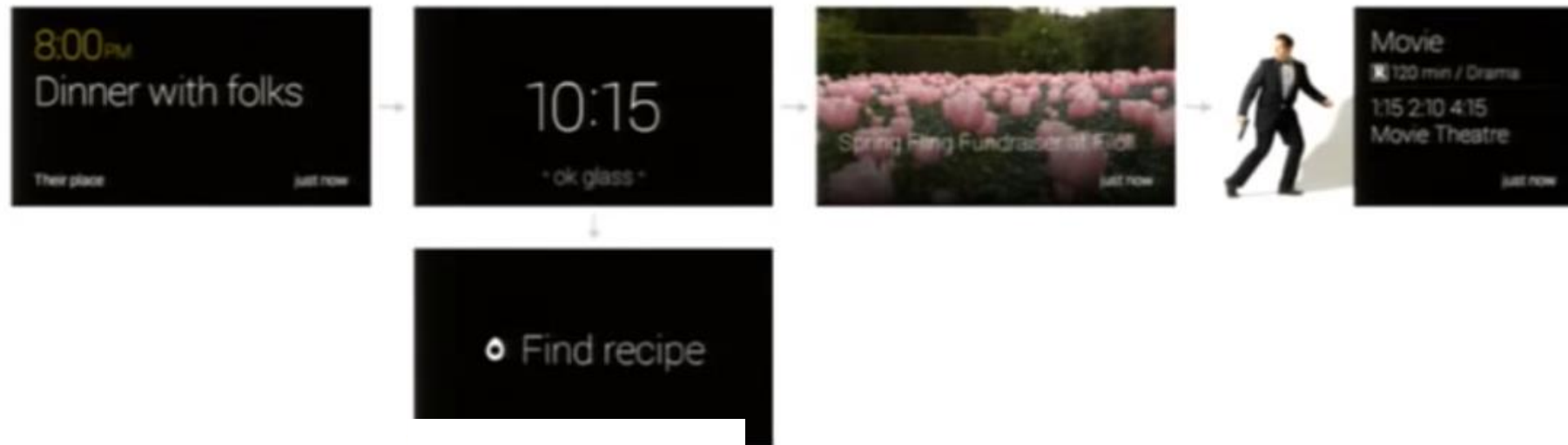
Mobile Health Informatics

Security and privacy

Time Frames

- Standard design pattern for Glass

Development Notes

- Time Frames
- User Features for Alzheimer Patients
- Sensors
  - Accelerometer
  - Gyro
  - Compass
  - Proximity
  - IR
- Runs on Ti OMAP4430
- Sensors managed by 'glasshub'

Navigation
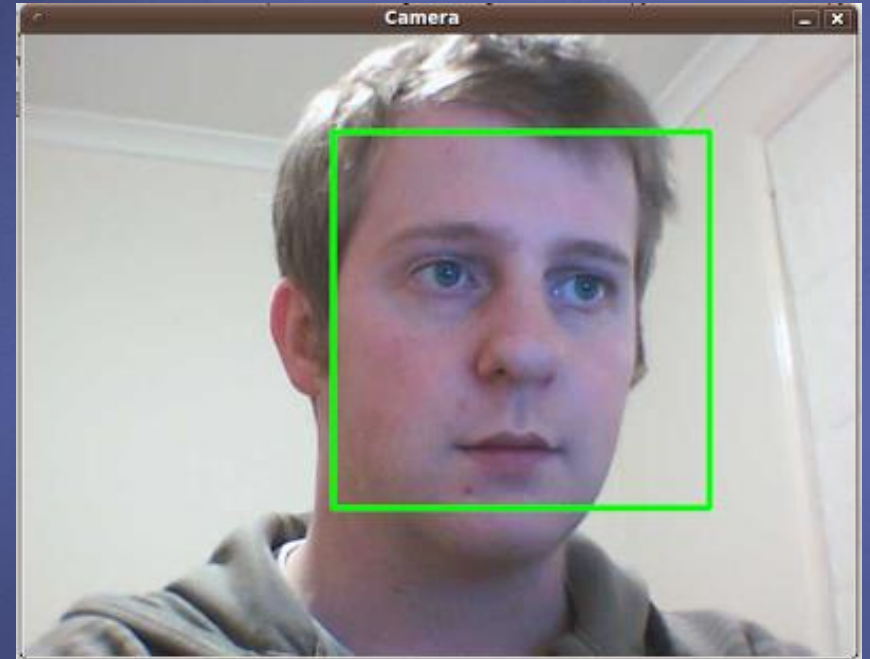

Product

- Take a Pic
- Comment
- Video
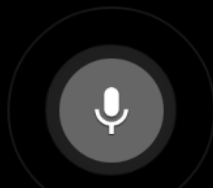- Send

This is a disaster.

Sending...
.

Alzheimer Assistance

- Facial Recognition
- Open CV

ok glass, get directions to...
send a message to...
make a call to...
make a video call to...
take a note with...

ok glass, take a note with...
Evernote
Speak now

Start speaking ...

Conclusion

- Google Glass is an ideal personal life style enhancement for Alzheimer patients
- Design patterns can be adopted to challenged individuals
- A variety of I/O can be used:
  - Speech
  - AR overlays
  - Audio
  - Head movements
  - Other sensor inputs