Team 11.

Reality Translator

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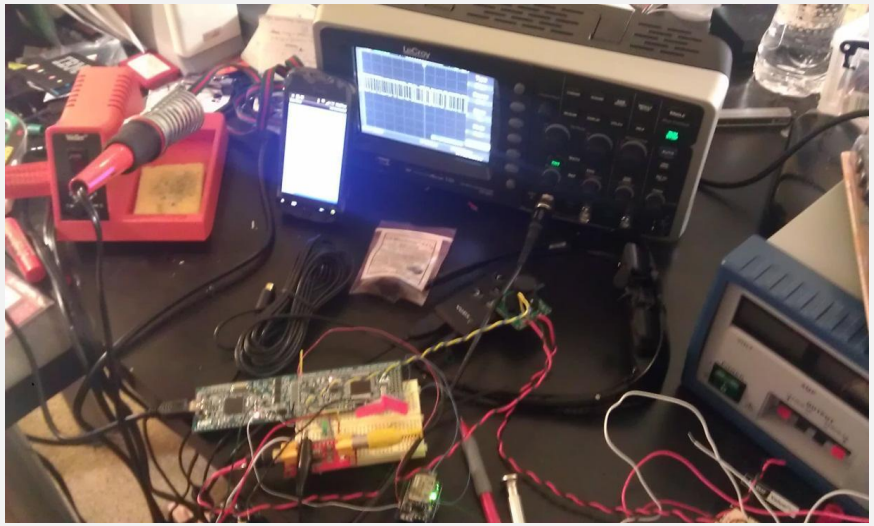
Status Update



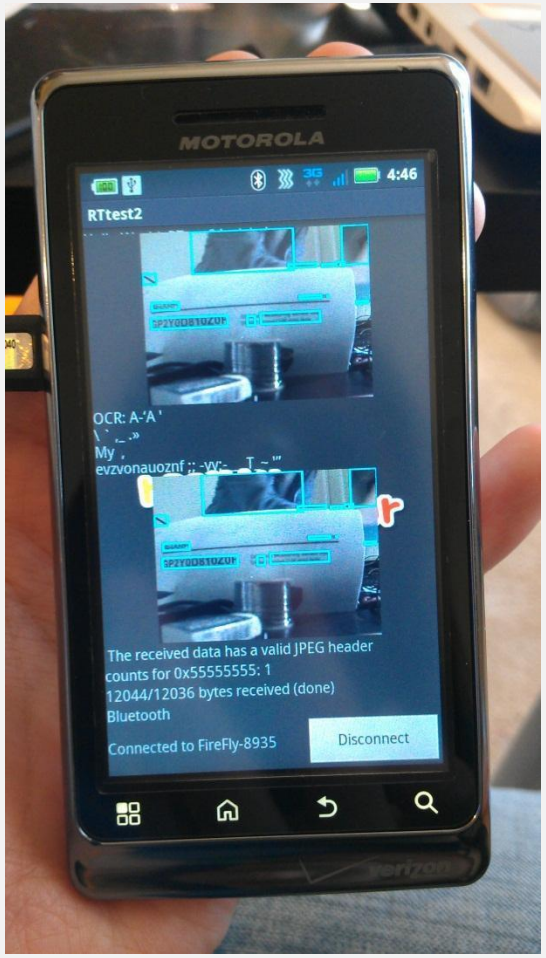
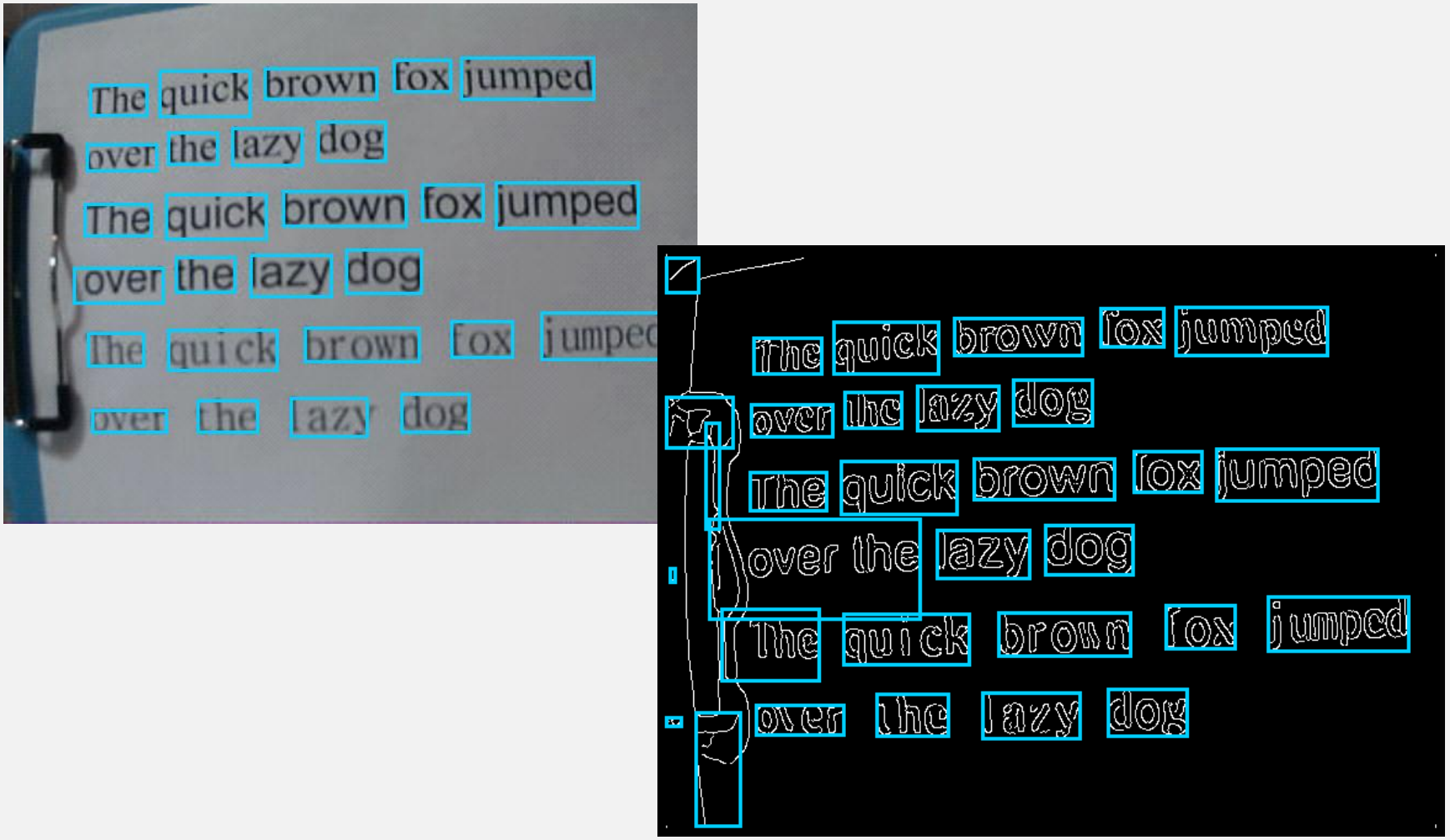


Image Processing

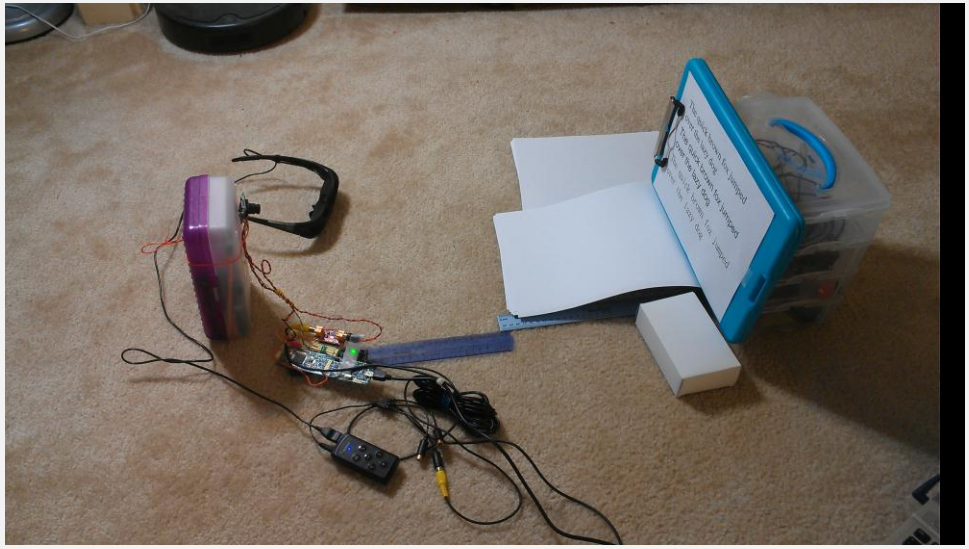


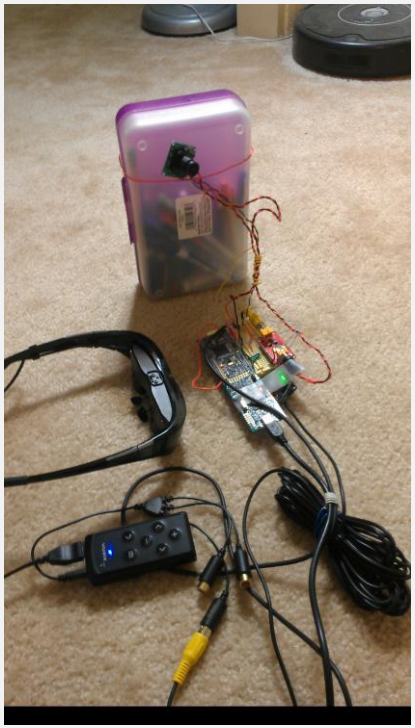
What we care about

- Latency
  - ✓ OCR, image processing, translation, bluetooth
- Accuracy of OCR
  - ✓ font type, size, color/contrast

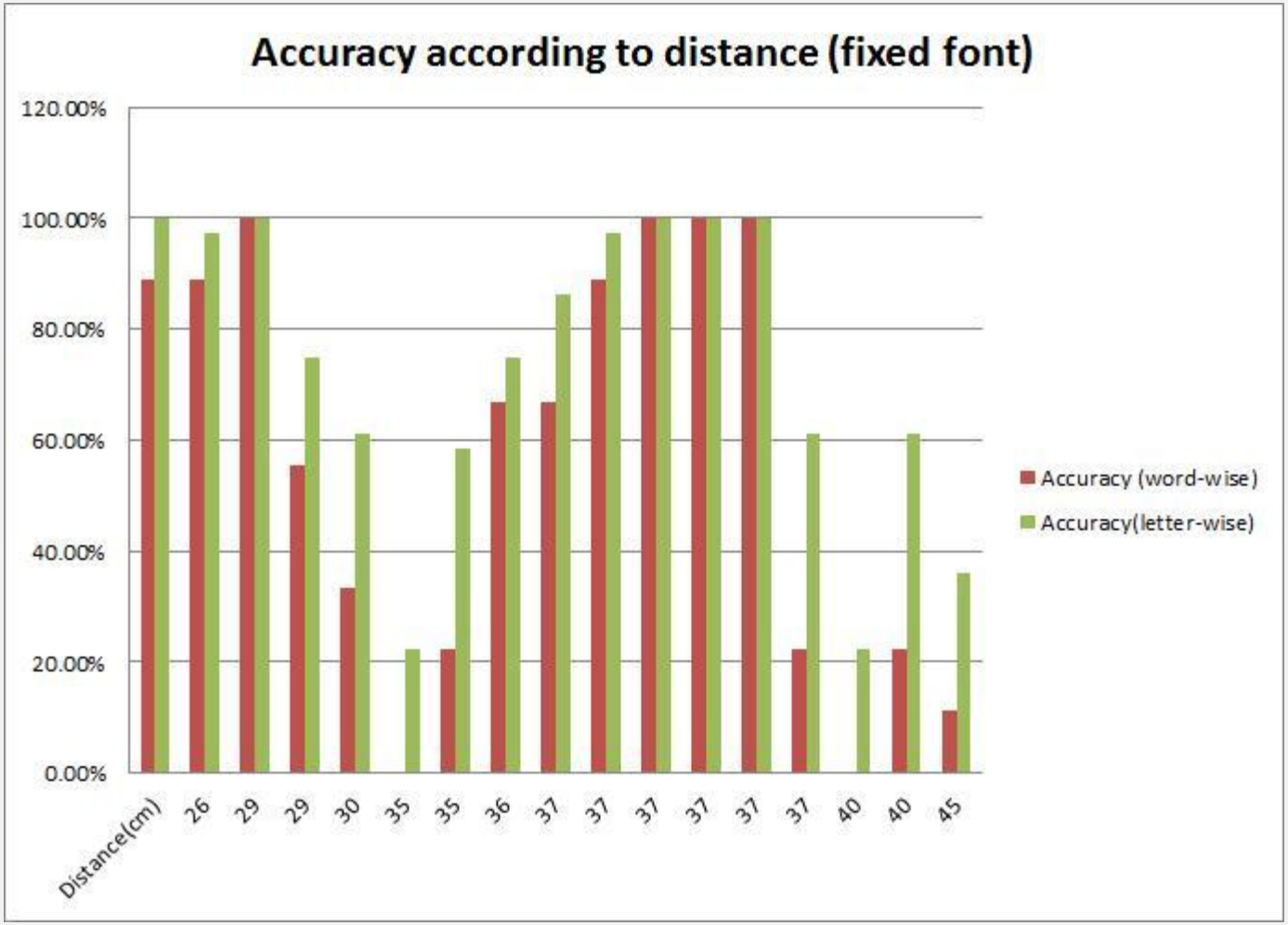
Tests Set-up

- Latency
  - ✓Use the timer function in Java/C
- Accuracy
  - ✓Do multiple tests with different fonts/size/color



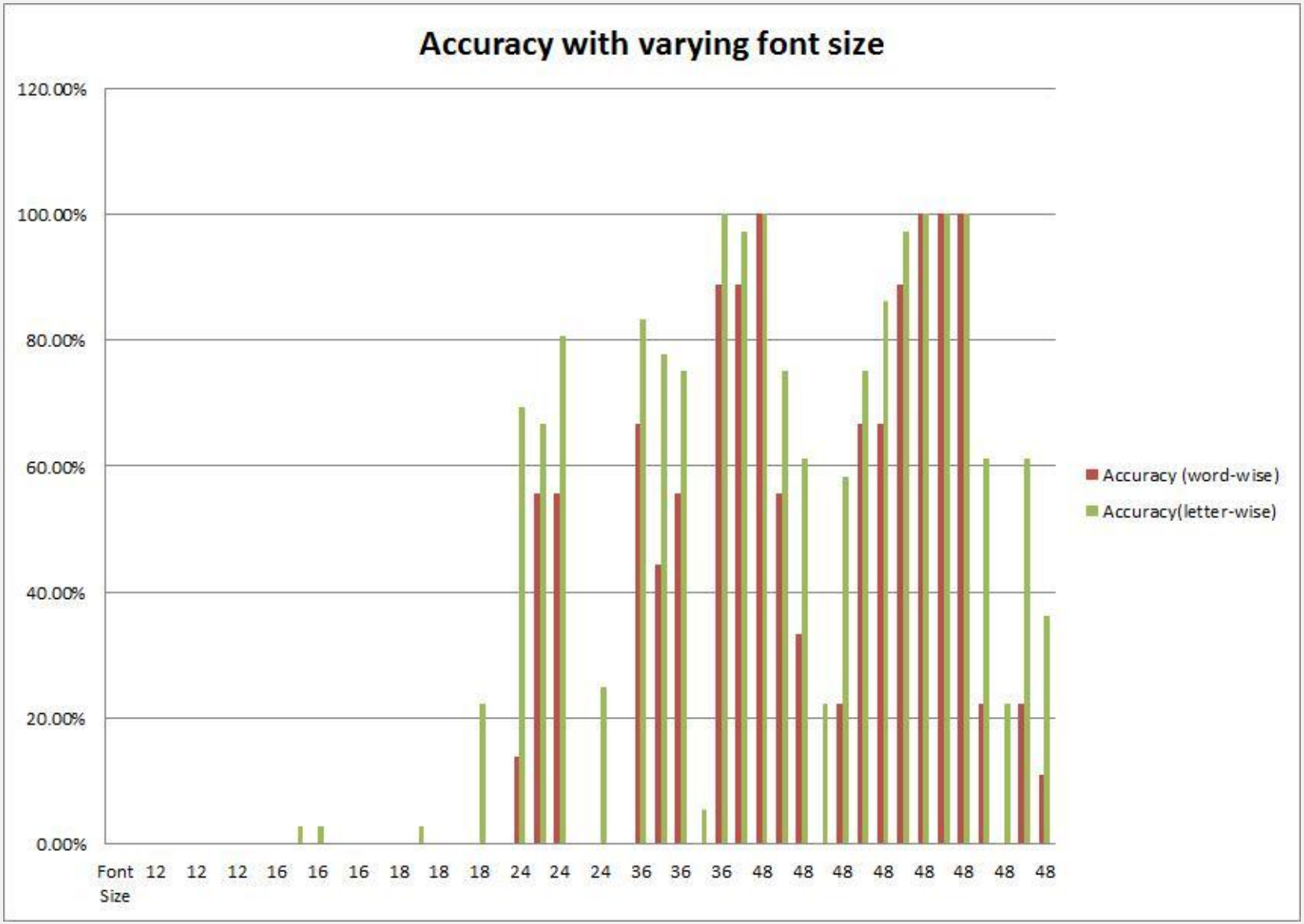


Bar Graph - Distance

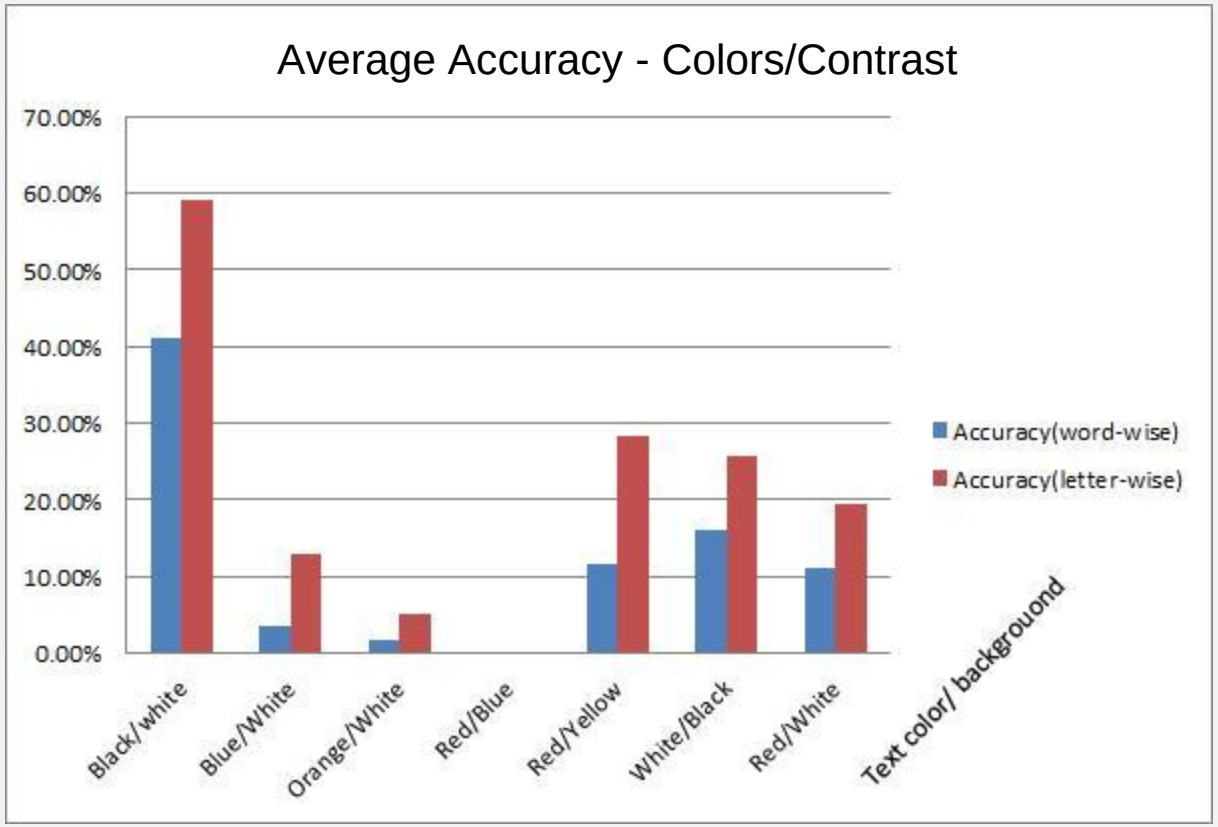


-Font: Arial, 48pt, black on white

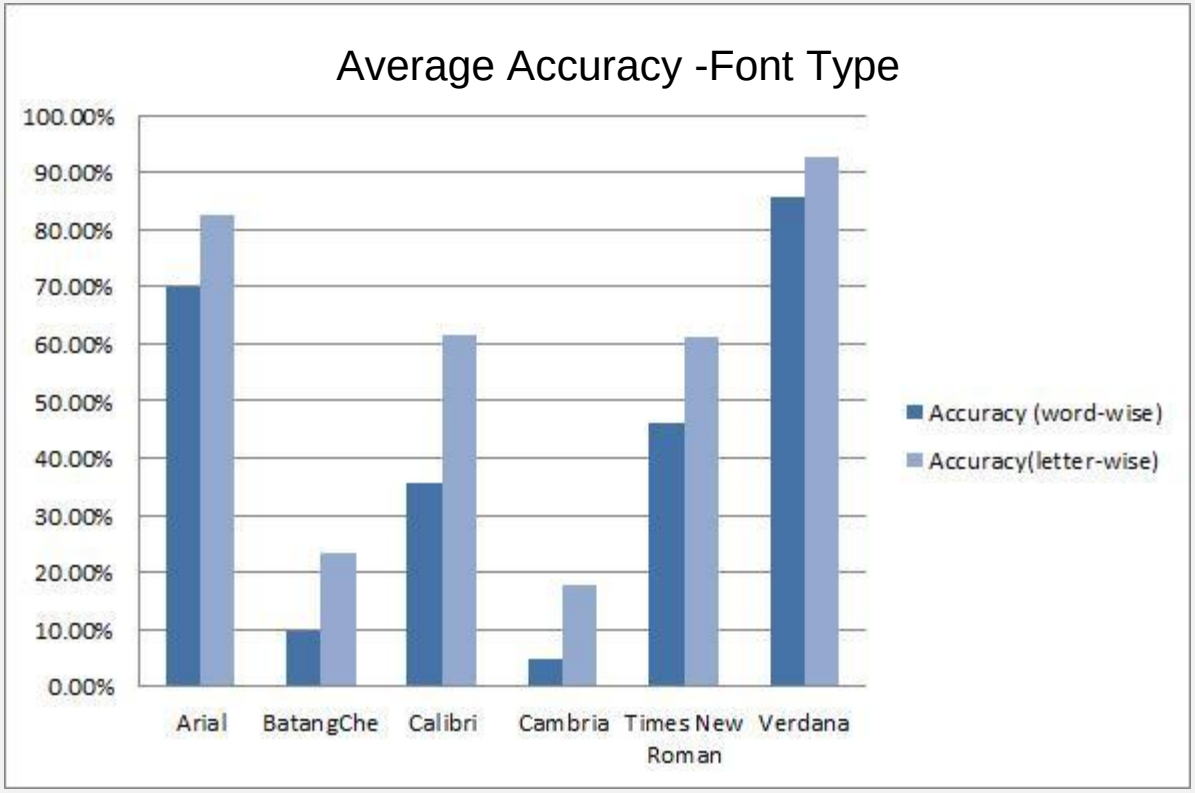
Bar Graph - Size of Font



Bar Graph - Colors/Contrast

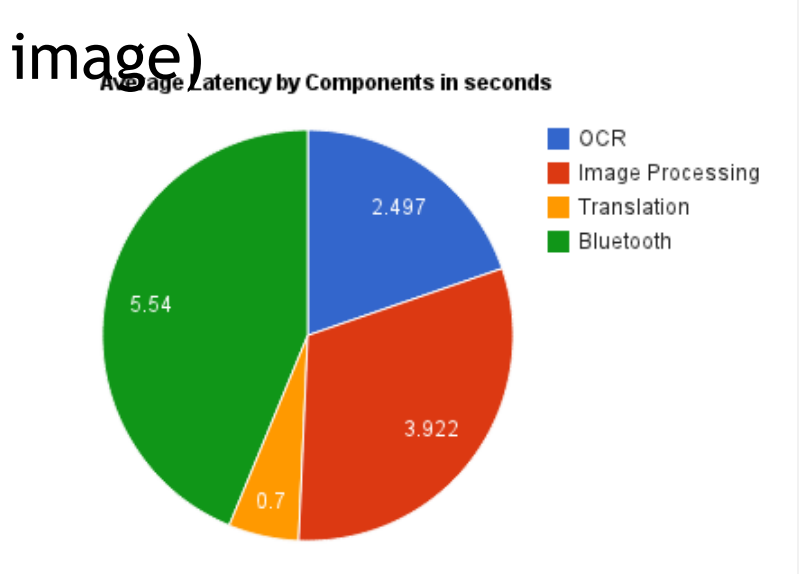


Bar Graph - Font Types

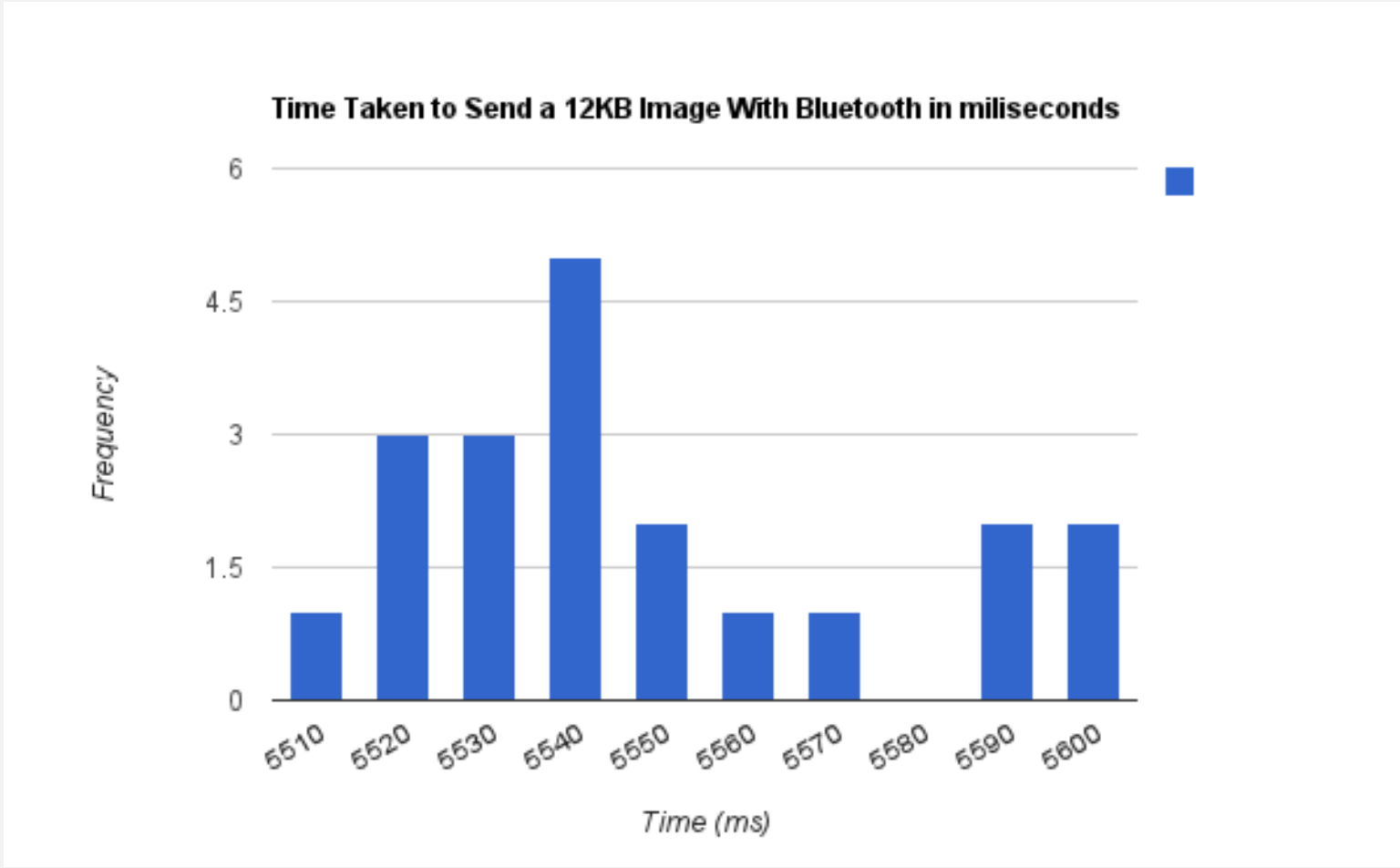


Test Results - Latency

- Average OCR latency for reading 27~54 words
  - ✓ ~2.497 s (without image filtering)
  - ✓ ~6.419 s (including image processing & resize)
- Average translation latency (27~54 words)
  - ✓ ~0.7 s
- Bluetooth Latency(for a 12KB image)
  - ✓ ~5.540 s



Jitter - Bluetooth



Looking Forward: Hardware

- Camera Transfer Rate
  - ✓Changing the baud rate from 38400 to 115200
- Power
  - ✓Planning to run this on batteries.

Looking Forward: Image Processing

- Edge detection has a difficult time defining small, finely defined curves
- What next?
  - ✓Enlarge image (~200%-300%)
    - Android stack space limited to a very finite size
    - Computation time beyond ~300% is too much
  - ✓Resharpen image
  - ✓Apply one of (eradicate minor artifacts created from enlarging+sharpening image):
    - Minor Gaussian Smoothing
    - Minor Median Filtering