Croatian Meteor Network



ADVANCES IN THE DEVELOPMENT OF A LOW-COST VIDEO METEOR STATION

Dario Zubović, Denis Vida, Peter S. Gural, Damir Šegon

SUMMARY

× Overview of current low-cost solutions

- Our approach with single-board computers
- × Showcase of new software

HARDWARE

PFN CCTV CAMERAS



IMC 2015: Dario Zubović et al - Advances in the development of a low-cost video meteor station

IMC 2014: Przemyslaw Zoladek - Future plans of the Polish Fireball Network

HARDWARE - CAPTURE

x Based on Sony ICX672/ICX673 CCD (Dave Samuels *et al*, 2014.) <\$50</p>

× F1.2 6mm/8mm/12mm lenses \$8



HARDWARE - COMPUTER

 × 16 camera array with computer and cabling = \$2600 or \$163 per camera













× Raspberry Pi 2+ 4 cores @ 900MHz



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HARDWARE - CAPTURE DEVICES

- EasyCap USB frame grabbers
 - 1. STK1160 ×
 - 2. UTV007 🗸
 - 3. SMI-2021
 - 4. EM2860

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HARDWARE



HARRWARE





- × CAMS format
- Compatibility with existing tools



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 + Rule of thumb: 15x slower execution than i7



Method initially developed by Mark Vornhusen for SkyPatrol software



Maximum pixel value Time of maximum pixel

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- 1:64 compression ratio
- × Written in C++
- Executes in ~3.85s on RPi2



















SOFTWARE - FIREBALL EXTRACTION



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HOW CAN YOU HELP?

Testing alternative hardware

- Software development / customization
- × Testing existing design





CONCLUSION

Modern tools can drive cost of our systems down

Consider having your software be opensource for your next project

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THANK YOU FOR LISTENING! QUESTIONS?