Paraj Tyle

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18549 Team 7: Omnioculars
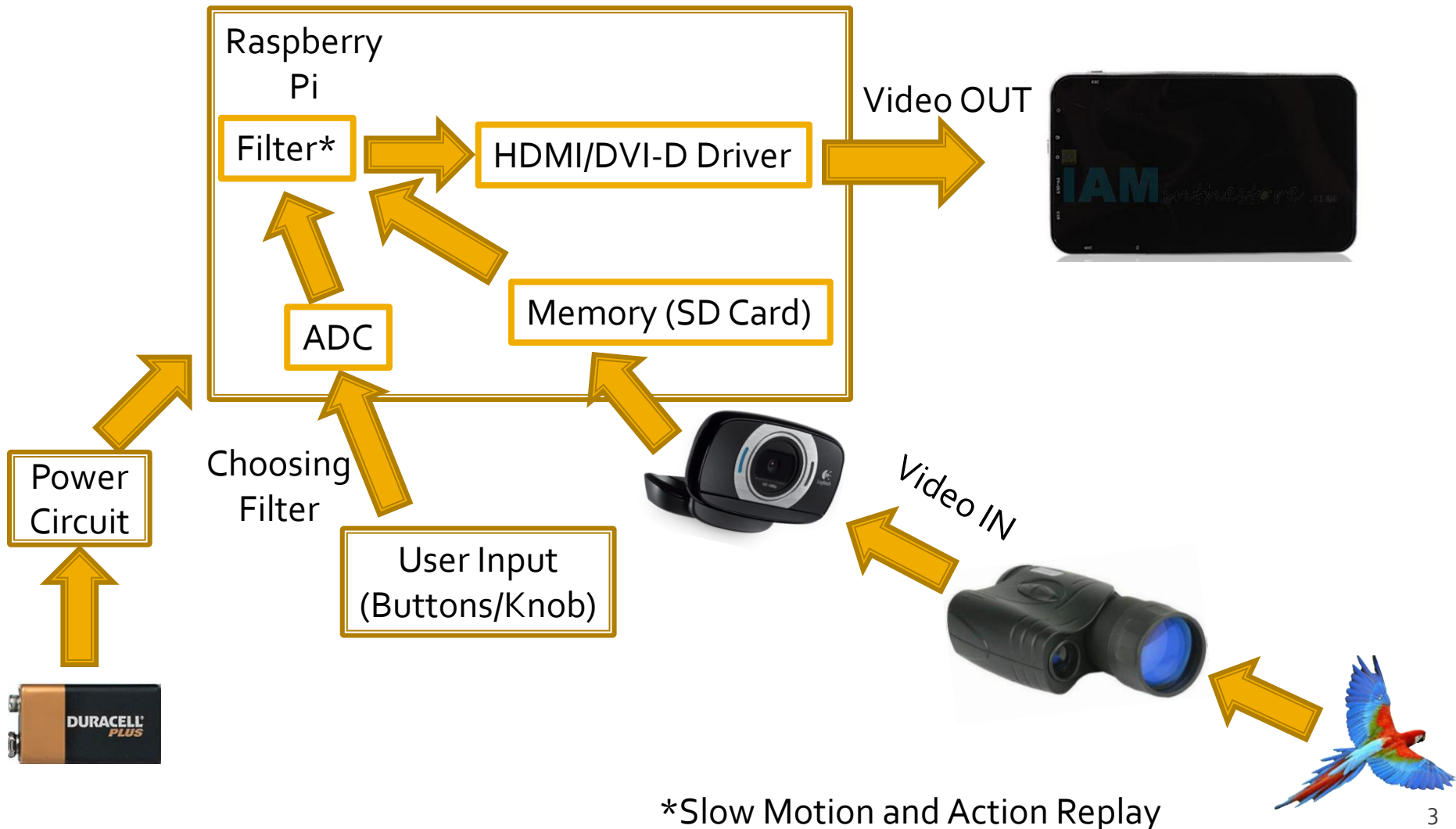
Design & Architecture

Sashank Alla

Status Update

- Project: Omnioculars
  - Magnified vision with action replay and slow motion

- Parts
  - All except monoculars received

- Division of labor
  - Software: Sanchit & Vishal
  - Hardware: Paraj
  - Testing & QA: Sashank

Architecture

Raspberry Pi

Filter* → HDMI/DVI-D Driver → Video OUT

ADC

Memory (SD Card)

Power Circuit

Choosing Filter

User Input (Buttons/Knob)

Video IN

*Slow Motion and Action Replay

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Use Cases

- Startup:
  initialize memory,
  start making a video Q

- Bird Watching

- Sports (ex: soccer, F1, ping pong, darts)

- Fast Moving Objects (ex: skydiving)

- Events (ex: convocation, concerts)

- Spying

- Shutdown:
  clear memory

Risks & Mitigation

RISKS

- Lag

- Video Quality

- Memory

- Battery: Weight and Duration

MITIGATION

- Improve algorithm. Worst case: try for a faster board.

- Better webcam. Budget left if required.

- Ordered 32GB. Can limit action replay duration.

- Currently plan to use AAs. Can order if required.

Plan B

- Replace Raspberry Pi with a smartphone for video processing
  - More cumbersome
  - Software oriented
  - Will affect the 'multi-purposeness' of a phone

Thank you

Questions?