



A. What is Flashback?

- FlashBack is a flexible, high speed video based trouble shooting tool for solving assembly and manufacturing problems. Especially those small ones that accumulatively make the difference between 80% and 90% efficiency.
- FlashBack allows a user to see a malfunction on a machine that happens too fast for the human eye or too seldom for a human to be present.
- Maintenance personnel tell you: ***“If we can see the problem, we can fix it”***. This is where FlashBack comes to the fore.
- Flashback is Easy to set-up, easy to use and is portable. Open the bag, power-up, connect the components, and you are ready to start trouble-shooting.

B. How Does Flashback Help Us? “Get ahead by looking back”.

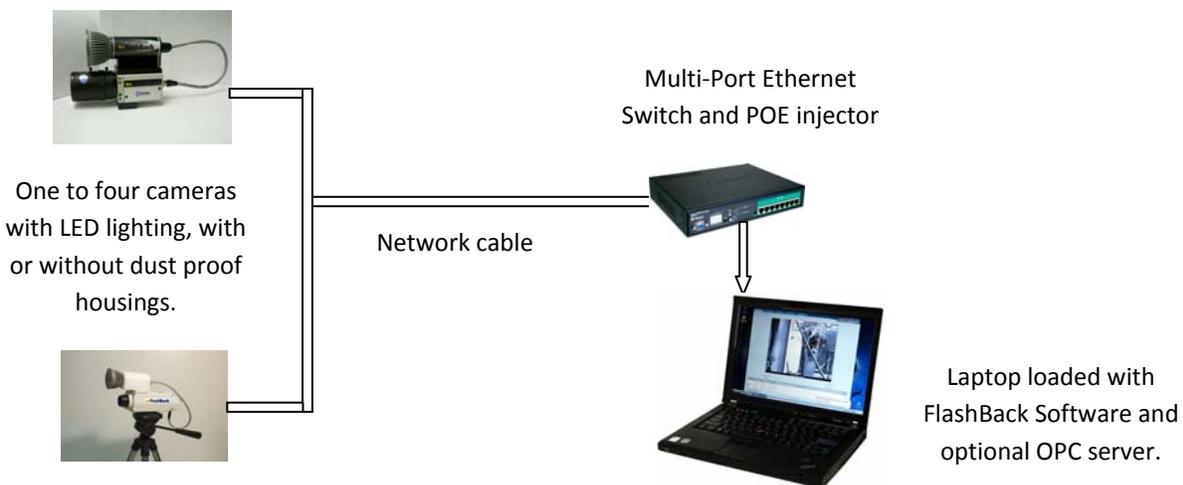
- On occurrence of a trigger, Flashback stores a video clip of the event.
- Stored video clips can be reviewed in slow motion, frame by frame, backward or forward at speeds up to 400% or down to 1% of the original recorded speed or played in a repetitive loop. The review allows the cause of a problem to be easily identified.
- The video clip can be trimmed to a new clip of smaller size for export.

C. What is an Event?

- An *Event* is an AVI video clip showing the three stages of an incident: what happened up to five minutes prior to the incident, the incident itself and the aftermath. These parts of the clip are referred to as the pre-trigger period, the trigger point and the post-trigger period.

D. What is a Trigger?

- A *Trigger* is a signal that an *event* has occurred. This initiates the recording of a video clip associated with the event.
- Triggers can be generated from many sources either manually or automatically.



E. What else can FlashBack Do?

- FlashBack can be scaled to work on a laptop, a mini PC or a server PC. A single camera laptop system fits in an aircraft carry-on size bag and weighs only 23lbs.
- FlashBack is '*Truly Portable*'. Both the cameras and laptop can be operated from batteries.
- Multiple cameras can be used. Up to four on a laptop, up to six on a mini PC and up to twelve on a server PC.
- Each camera is equipped with a cool High Power LED light.
- Power to the cameras and LED lights is fed using Power over Ethernet (POE) technology, which means that the only cable to each camera is a standard CAT5 Ethernet cable.
- Cameras of different speeds (frame-rate) can be used at the same time. (30, 60, 120, 150). This is useful, because lower speeds need less light, and high speeds can capture faster action.
- FlashBack supports a 'Time Shift' Display. This allows a 'live view' to be paused, replayed at full speed or in slow motion, single stepped backward or forward. A portion of the 'Time Shifted' display may be selected and saved as an 'event' for review at any time later.
- FlashBack uses a variety of triggering methods. Hand-held Honeywell remote, Touch of a key on the keypad, Touch of a 'hot spot' on the live view display, Wireless Stack Light Trigger, Hard-wired contact closure, Motion Detected in an Area of Interest (AOI) in the live view, Auto recurring at user specified interval or any point monitored by a PLC (uses an OPC server).
- The captured video can be slowed down so that the eye can see what actually happened and as a result be able to diagnose what went wrong. Playback can be slowed to less than one frame per second, can be stepped frame by frame forward or backward. Limits can be set so that the video can be played in a loop between the two limit points.
- Up to four videos captured from different cameras of the same scene at the same time can be played back synchronously. This allows multiple views to be analyzed in a time synchronized fashion. The time between each display can also be adjusted, allowing down-line and up-line views to be displayed at the same time.
- Cameras can be adjusted for any lighting conditions, automatically or manually.
- The disk space is managed, so that video clips will be deleted with age, to keep the used space below a user set limit (e.g. 75%).
- With each clip FlashBack stores a set of Metadata, so that the user can see the settings that were present on the camera at the time the video clip was captured. (E.g. shutter speed, frame speed, ISO rating and size of clip on the hard disk).
- The video can be trimmed to a short and precise video showing only the significant information.
- Video may be removed from the Flashback PC by exporting to a thumb-drive, CD or DVD.
- Video may be emailed directly from the Flashback PC using a wireless internet connection.
- Video may be exported or emailed at a frame rate that allows playback in slow
- A live view is available at all times for up to six cameras at a time. This is useful for keeping an eye on normal daily procedures.

FlashBack Consists of the Following Five Areas of Operation.

A. Live View.

- The default display is a *real-time view* of the camera(s) in use. Up to six camera views may be displayed at one time.
- The live view may be replaced with the '*Time Shift*' display, allowing the 'live view' to be paused and replayed.

B. Event Viewer.

- The viewer allows the users to find and *display* video clips.
- *Analyze* a recorded clip.
- Trim clips to a smaller size.
- *Export* clips to external media.
- Display *metadata*.
- Synchronously display up to four events recorded at the same time.

C. Camera Controls.

- Allows the camera settings to be *adjusted*: Shutter speed, ISO rating, White Balance, Frame-rate and Iris.

D. User Login.

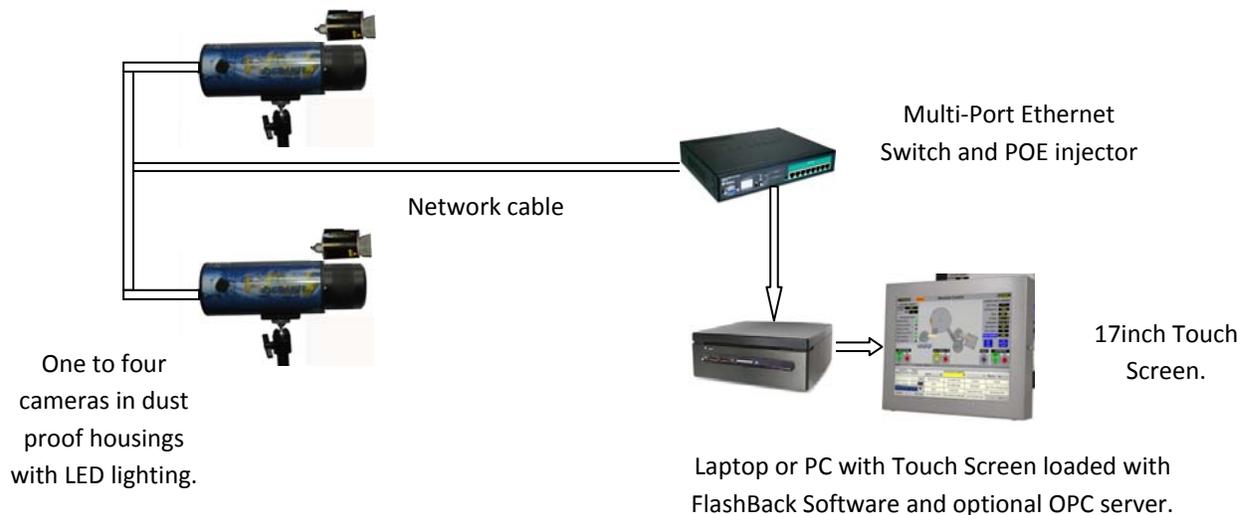
- Allows security and enables the *System Admin*.

E. Configuration.

- Allows setup of *Events, Recording Intervals, Disk Management and Motion Detection*.

F. System Admin.

- Allows Non-user *system parameter* setup.



Definitions of Terms.

1. Auto White Balance - automatically adjusts for the ambient light Conditions available.
2. AVI Files - Audio Video Interleave. AVI files can be sent as is, no need for any conversion.
3. Clip Trimming - ability to reduce previously recorded video down in size.
4. Clips - stored video events.
5. Camera Controls - shutter speed, ISO, and light settings For camera.
6. Configuration Screen - Camera and trigger set up.
7. Events Viewer - Multi-tasking screen for clip review, slow motion playback, editing, and exporting.
8. Exporting Clips - the ability to email or download selected clips.
9. Hard Disk Management - available free space parameters setting.
10. ISO - denotes how sensitive the image sensor is to the amount of light present.
11. Lens Aperture - The aperture is like the human eye and controls light.
You close the aperture ring down to restrict light and open it up to provide more light.
12. Live View - used to verify camera location, picture, and image focus.
13. Loop - ability to select video limits and play over and over.
14. Meta-Data - a historical fact table showing under what settings each video was captured.
15. Multi-Frame Rate Camera - a camera capable of shooting at Different frame rates per second.
16. OPC Server – gathers data from the PLC in a standard format for use by FlashBack.
17. Pre-Trigger Time - amount of time captured prior to your trigger.
18. POE - Power Over Ethernet.
19. Post-Trigger Time- amount of time captured after your trigger.
20. ROI – Region of Interest for Motion Triggering.
21. Shutter Speed - the effective length of time a cameras shutter is open.
22. Trigger - a manual or automatic way to tell the system to save Video.

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