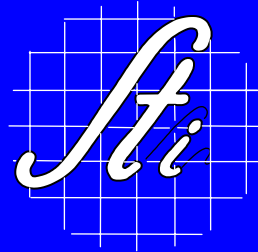


CURRENT ACTIVITIES AT SYSTEMS TECHNOLOGY, INC.



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SAE Aerospace Control & Guidance Systems Committee
Meeting No. 96

Hilton Head, SC
19-21 October 2005



THE ORIGINAL DATS

- DATS was designed to give driver's education instructors, occupational therapists, and other researchers a tool to assess an individual's driving performance
- DATS gave them the opportunity to train individuals (using HTML presentation files and STISIM Driving scenarios) without the need for constant supervision
- Program Features:
 - Registered users
 - HTML-based training
 - Automated driving scenarios follow training using STISIM Drive
 - Students graduated from program after completing a minimum number of scenarios with a passing score (no accidents, minimal mistakes)
 - Using the driver's data, DATS compiled a summary of the driver's performance (accidents, tickets, etc) that could later be reviewed by an instructor or researcher

THE EVOLUTION OF DATS

- DATS Version 2 is fully customizable:
 - All text and pictures appearing on the screen are user-defined (read in from a text file)
 - Can thus support training scenarios in most languages
- Two modes are available: closed and open mode
- Closed mode mimics the original version of DATS where users are locked into a routine
 - This mode is ideal for researchers who want to be able to sit each subject down at a chair and run them through the same set of their materials
 - The user-defined set of driving scenarios can be randomized – ideal for counterbalancing experiments
- Open mode allows users to login to DATS and view/select from an assortment of presentation files and driving scenarios (along with detailed information explaining what each file does).

DATS REGISTRY PAGE

New Driver Registry
⌵ ⌵ ⌵

DRIVER
ASSessment
 AND
TRAINING
SYSTEM

Please fill out your information below. Use the tab key, enter key, or mouse to select a field. Use either the keyboard or the alphanumeric key pad provided below with the mouse to enter your text. Select 'Save and Continue' when finished.

Driver Profile

*Required Fields

*First Name:

*Last Name:

*Gender: Male Female

*Age:

Instructor Name:

Class Name:

Period:

Create Your:

*User ID:

*Password:
(Not Case Sensitive)

*Re-enter Password:

*Secret Question:

*Enter Answer:

Comments:

Alphanumeric Key Pad: Select the field first with the mouse before using the pad.

A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	2	3	4	5	6	7	8	9	0	.	,	'
Caps Lock	Space Bar										BackSpace	

Save and Continue

Go Back to Start Page

DATS PERFORMANCE PAGE

My Performance History

MY PERFORMANCE HISTORY

DRIVER ASSESSMENT AND TRAINING SYSTEM

Driver Information:

Name: Systems Technology
 ID: a
 Trials Completed: 17
 File ID: 206853833
 Last Run: 8/31/2005

TRIAL #1:

Accidents:	Total =	1	{0 needed to pass}
	Vehicle collisions =	0	
	Off road accidents =	0	
	Pedestrians hit =	1	
Traffic Violations:	Total =	0	{< 2 needed to pass}
	Speeding tickets =	0	
	Traffic light tickets =	0	
	Stop sign tickets =	0	
Turn Signal Usage:	Incorrect use of turn signals =	0	{minimal number to pass}
Vehicle Control:	Speed exceedances =	2	{minimal number to pass}
	Centerline crossings =	4	
	Road edge excursions =	1	
	Excessive cornering maneuvers =	0	
	Excessive braking maneuvers =	0	
	Excessive steering maneuvers =	0	
Individual Mistakes:	{Seconds}	{Feet}	{Length in feet}
Centerline crossing	10.73	328	3966
Speed exceedance	15.17	654	--
Road edge excursion	23.38	1370	474
Hit pedestrian	24.40	1462	--
Centerline crossing	38.00	1654	179
Centerline crossing	45.68	2136	170
Centerline crossing	76.95	2448	773
Speed exceedance	82.75	2850	--
Start of Run:	2:58:03 PM		
End of Run:	2:59:28 PM		
Duration of Run:	1 minute(s) 25 second(s) ==> 84.58 second(s) 3000 Feet		
Average Speed:	35.47 f/s ==> 24.18 mph ==> 38.92 kph		

[Print](#)

[Save to Disk](#)

[Return to DATS Training and Testing Page](#)

HELICOPTER FLIGHT CREW TRAINING ISSUES

- The effectiveness and safety of complex, multi-role helicopter platforms require that the cabin crew interact seamlessly with the flight crew and a dynamic external environment
- Due to physical constraints and fidelity limitations current simulation designs fail to accommodate a wide range of training
- STI's approach to this challenge employs a novel and elegant method using three proven technologies – live video capture, real-time video editing (blue screen imaging), and virtual environment simulation

FUSED REALITY

-- Patent Pending --

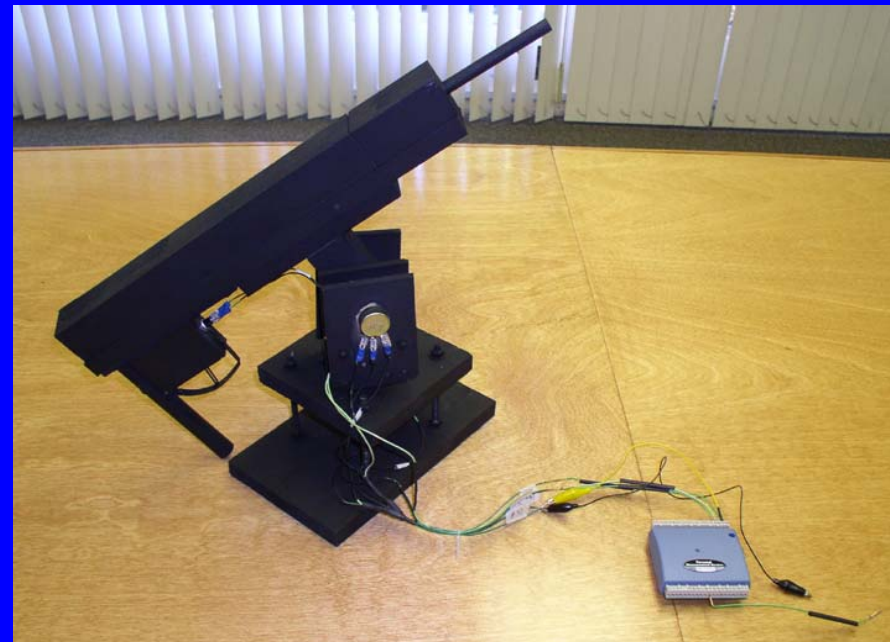
- Video from the trainee's perspective is sent to a processor that preserves near-space (cabin environment) pixels and makes transparent the far-space (out-the-cabin) pixels using blue screen imaging techniques.
- This bitmap is overlaid on a virtual environment, and sent to the trainee's helmet mounted display
- In this way the user directly views the physical cabin environment, while the simulated outside world serves as a backdrop.

KEY HARDWARE ELEMENTS OF FUSED REALITY



Helmet-Mounted Display, Helmet-Mounted Micro-Camera, Interactive Hardware (Sub-Machine Gun), Portal Surface (Magenta Dish).

VR HEADSET MOUNTED WITH MICRO CAMERA & INERTIAL HEAD TRACKER



SUB-MACHINE GUN MODEL SHOWN WITH COMPUTER- SENSOR INTERFACE

SEQUENCE OF FUSED IMAGES

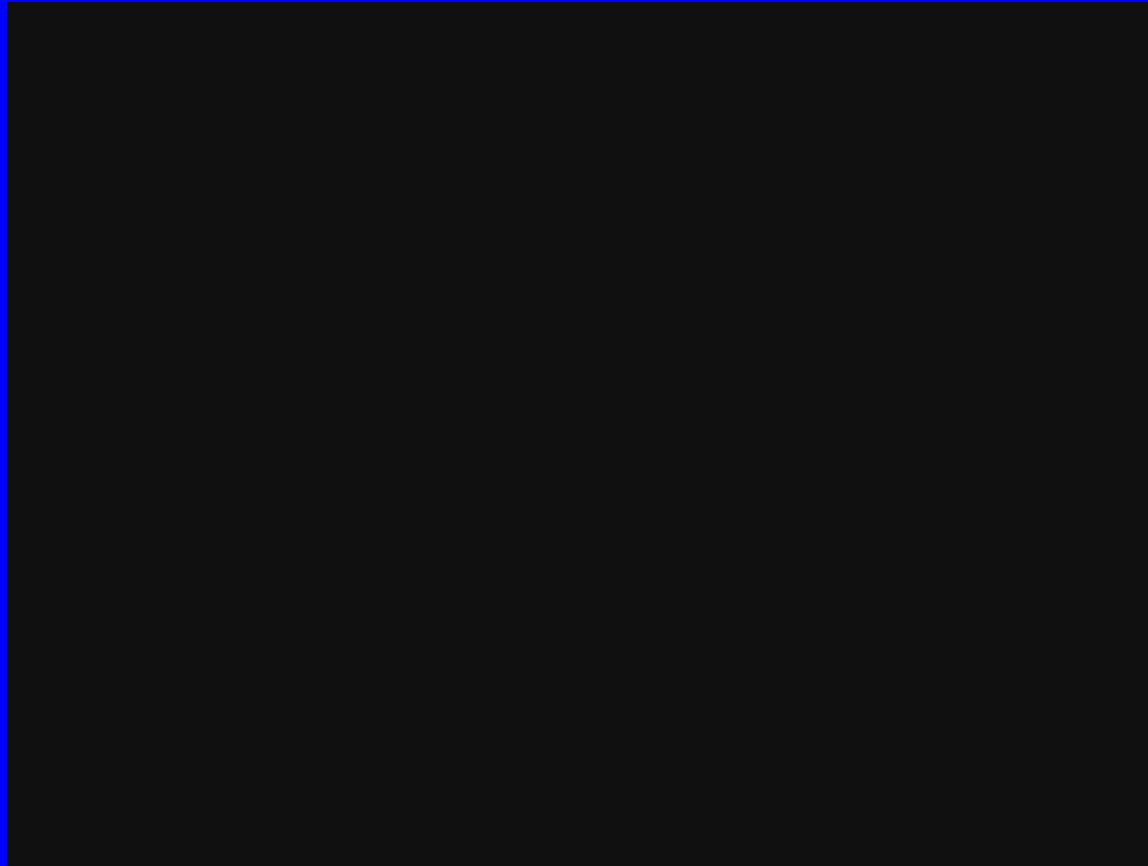


FUSED REALITY GUNNERY DEMONSTRATION AT HC-3 NORTH ISLAND



Red Arrow Indicates Gunner's Window Where Sub-Machine Gun was Mounted and Magenta Dish Erected

FUSED REALITY VIDEO



2 March 05

Presentation to SAE Control & Guidance
Systems Committee