PACKAGE ID - 000810AL00000 PROTOTYMER

KWIC TITLE - Human Performance Instrumentation for HyperCard-Based Prototypes

AUTHORS - Miller, D.P.
Sandia National Labs, Albuquerque, NM (United States)

Stone, A.C.
Stone Design Software, Albuquerque, NM (United States)

LIMITATION CODE -UNL **AUDIENCE CODE -** UNL

COMPLETION DATE - 05/08/1989 **PUBLICATION DATE -** 05/08/1989

DESCRIPTION - PROTOTYMER is a meta-program that self-installs as a shell around the researchers prototype, creating an instrumented stack which obviates the need for the researcher to write any script for data collection. PROTOTYMER can time and record user's interactive sessions with prototypes developed using HyperCard (TM). While operating in the background, PROTOTYMER records the times, locations, and targets (objects clicked) of a subject's inputs during an interactive session and creates a data file for post-session analysis by the researcher. At the conclusion of the session, the resultant data file can be reviewed, summarized, printed, or transferred to a spreadsheet for statistical or graphical analysis.

PACKAGE CONTENTS - Media Directory; Software Abstract; Media Includes Source Code, User's Guide, Executable Module, Sample Problem Input Data, Programmer Documentation, Readme First is a Teach Text Document Explaining the Package Tester Sample Stack to Try Out PROTOTYMER with PROTOTYMER 1.0 Application;

SOURCE CODE INCLUDED? - Yes

MEDIA QUANTITY - 1 3.5 Diskette.

METHOD OF SOLUTION - In a simulation where time-critical recording of input is taking place, it is imperative to minimize the amount of processing overhead associated with data collection so that accuracy is maintained and no perceptible delay is introduced into the simulation. A lazy algorithm was adopted where the data are recorded using minimal script during the session and written to a global variable in RAM, thus avoiding a time consuming disk access for each event. The algorithm captures the minimal information that could completely describe (or reconstruct) the HC event; time, location, the target (button, field, card, background, or stack), and the card on which the event occurred. At the end of the session, the raw data are written to a field on a newly created card, dedicated to that session. Time-intensive formatting of the data for easy viewing by the researcher is then performed off-line, when the researcher examines the results of the session.

PACKAGE ID - 000810AL00000 PROTOTYMER

METHOD OF SOLUTION -(CONT)
COMPUTER - APPLE MACINTOSH

OPERATING SYSTEMS - Apple Macintosh

PROGRAMMING LANGUAGES - HyperCard 1.2

SOFTWARE LIMITATIONS - Although PROTOTYMER will operate satsifactorily with any prototype stack, its level of performance diagnosticity will depend on how your prototype stack is constructed. The prototype is both easiest to construct and delivers the most diagnostic data when an individual card is used system state, and unique, descriptive names are used for all buttons, fields, and cards. Guidelines for writing your prototype stack to maximize diagnosticity are included as on-line documentation in the PROTOTYMER stack.

SOURCE CODE AVAILABLE (Y/N) - Y

UNIQUE FEATURES - An ergonomic front end makes PROTOTYMER very simple to install

RELATED SOFTWARE - On same disk, TESTER is a simple prototype to demonstarte PROTOTYMER.

HARDWARE REQS - Best performance is obtained with a hard disk drive, as the slower floppy read/write times can interfere with timing accuracy. Although and Macintosh II (TM) equal to or larger than a Macintosh Plus will work, a Macintosh II with a fast internal hard disk drive will give the best performance.

TIME REQUIREMENTS - A tick is the smallest unit of time accessible to HyperCard and is approximately 1/60th of a second. Consequently, the timing accuracy of PROTOTYMER is only good to one HC tick and cannot discriminate performance differences less than 16.7 msec in duration. Although this accuracy limitation will not affect PROTOTYMERs use in evaluating most user interfaces, it certainly hinders its applicability to conducting reaction-time experimentation, and until HC gets a more accurate clock, PROTOTYMER is not recommended for this use.

ABSTRACT STATUS - Submitted 4/14/95. Released screened 4/10/96.

SUBJECT CLASS CODE - OT

KEYWORDS -
COMPUTER PROGRAM DOCUMENTATION
P CODES
MAN-MACHINE SYSTEMS
TIME MEASUREMENT
DATA PROCESSING

PACKAGE ID - 000810AL00000 PROTOTYMER

DATA ACQUISITION
APPLE COMPUTERS

EDB SUBJECT CATEGORIES -
990100 420200

SPONSOR - DOE/DP

PACKAGE TYPE - SCREENED