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Memorandum M-2822

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Division 6 - Lincoln Laboratory
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

CLASSIFICATION CHANGED TO:
Auth: DD 259
By: R. R. Everett
Date: 2-15-60

SUBJECT: SUMMARY OF MIT-IBM COLLABORATION ON DESIGN OF AN FSO-7 (XD-1)
COMBAT INFORMATION CENTRAL, APRIL 1 THRU APRIL 30, 1954

To: J. W. Forrester, R. R. Everett, J. C. Proctor, C. R. Wieser,
N. H. Taylor, D. R. Brown, S. H. Dodd, P. Youtz

From: A. P. Kromer

Date: May 8, 1954

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Abstract: Cape Cod System demonstrations were given to four groups of IBM
(Project High) personnel. Diode switching of read-write circuits
in drum system has been selected for the prototypes and initial
duplex centrals. The central Display Selection Frame has been
eliminated. Proposal describing the electronics for a duplex
central will be issued early in May.

Engineering Visits

During the month of April IBM people working on the Project spent approximately 191 man days at Cambridge, while MIT people spent approximately 158 man days at IBM. Included in these figures are four groups of IBM people (approximately 15 each) for whom a demonstration of the Cape Cod System was given on successive Thursdays during the month.

The use of the IBM airplane for travel between Poughkeepsie and Cambridge has been of real help in permitting people to make more frequent contact with persons engaged on the Project at the other location.

Exchange of Publications

During this period we forwarded to IBM 22 M Notes and other miscellaneous memoranda and drawings.

We have received from IBM five "H-Notes," eight "IM" Reports, two CRR-Bulletins, three TR-Reports, three Project High Biweekly Reports, and 14 miscellaneous documents and test reports.

General Comments

Collaboration between the two engineering groups continues in those areas where work has not yet been completed. During the month formal

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Lincoln Approval has been extended for the Radar Input Counter Specification, revision to drum specifications (to add the MIR field and to reduce the DID fields from two to one), specifications for the Selection Control Frame, revision of the input system (to accommodate FGD, Mark X and Automatic Height Finding Data), and the use of the five inch Typotron for DID Display. In addition, engineering concurrence was reached for 10 additional basic circuits, XD-1 equipment layout in building, and the mode of operation for 711, 716, 721 IBM Card Machines.

It was decided to use diode switching for the read-write circuits of the drum system of XD-1 and XD-2 and the initial two duplex systems. In the meanwhile, continued study will be devoted to the application of magnetic switching for future duplex systems since this method seems to offer a saving in the number of vacuum tubes and other hardware as compared to diode switching.

IBM and MIT groups are jointly following the status of development work and preparation for production of both Typotron and Charactron tubes at Hughes and Convair, respectively.

Review of the logic for the central display system has indicated a reduction in equipment is possible if the display Selection Frame is eliminated and the hardware and components necessary for selection is placed in each display console. It has been agreed to follow this latter approach.

Construction of plug-in units, modules and frames for XD-1 and XD-2 is continuing at the IBM plant. The initial module "C" of the Instruction Control Frame was completely assembled and placed on test during the month. The schedule for construction indicated completion of the Instruction Control and Program Element Frames. However, this schedule was not met. The equipment is in process of assembling and wiring and is expected to be completed during May.

The Joint Committee studying the XD-1 design to determine necessary modifications for converting this system into a duplex are preparing a report, which will be issued as a Proposal early in May. This report will describe the system as well as the philosophy of operation and maintenance of the electronics.

During April the initial meeting of a series of monthly meetings was called by AMC. These meetings will review the status of the prototype program and subsequent production with particular attention to any item which may delay delivery of equipment.

Work has continued on the preparation of Budget Estimates for use by the Air Force in connection with funding for FY '55 and FY '56. Meetings on this matter were held with IBM and ADES, as well as ADC Headquarters group.

The ADES organization expects to start architectural work on the building to house the Duplex Central within the next few weeks. Studies of the various features of this building and the layout of equipment in it has

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been continuing with IBM--Francis Associates, ADES, and Air Force personnel participating.

Signed:

A. P. Kromer / 02
A. P. Kromer

Approved:

N. H. Taylor
N. H. Taylor

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