

QUARTERLY PROGRESS REPORT

No. 109

APRIL 15, 1973

**MASSACHUSETTS INSTITUTE OF TECHNOLOGY
RESEARCH LABORATORY OF ELECTRONICS
CAMBRIDGE, MASSACHUSETTS 02139**

The Research Laboratory of Electronics is an interdepartmental laboratory in which faculty members and graduate students from numerous academic departments conduct research.

The research in this laboratory is made possible by support extended the Massachusetts Institute of Technology by the following agencies.

Joint Services Electronics Program (U.S. Army, U.S. Navy, U.S. Air Force)

Contract DAAB07-71-C-0300

U.S. Army—Research Office—Durham

Contract DAHC04-69-C-0042

Contract DAHC04-71-C-0039

Contract DAHC04-72-C-0044

U.S. Navy—Office of Naval Research

Contract N00014-67-A-0204-0019

Contract N00014-67-A-0204-0064

Contract N00014-67-A-0204-0069

U.S. Air Force—Office of Scientific Research

Contract F44620-71-C-0051

Contract F44620-72-C-0057

U.S. Air Force—Wright-Patterson

Contract F33615-72-C-2129

National Aeronautics and Space Administration

Contract NAS1-10693

Grant NGL 22-009-304

Contract NAS8-27733

Grant NGL 22-009-337

Grant NGL 22-009-013

Grant NGR 22-009-421

Grant NGL 22-009-016

Grant NGR 22-009-526

National Institutes of Health

Grant 1 PO1 GM19428-01

Grant 5 RO1 NS04332-10

Grant 1 PO1 HL14322-01

Grant 5 SO5 FR07047-06

Grant 5 PO1 GM14940-06

Grant 2 TO1 GM01555-06

Grant 1 RO1 NS10737-01

Grant 5 TO1 HD00111-08

National Institute of Mental Health

Grant 2 PO1 MH13390-06

National Science Foundation

Grant GK-28282X1

Grant GP-20769A#2

Grant GK-31353

Grant GP-21348A#2

Grant GK-33736X

Grant GP-28679

Grant GK-33843

Grant GX-36331

National Bureau of Standards

Grant NBS2-9011

U.S. Atomic Energy Commission

Contract AT(11-1)-3070

Bell Telephone Laboratories Inc. (Grant)

Associated Press (Grant)

California Institute of Technology

Contract 952568

Contract 953524

University of California, Livermore

Subcontract No. 7877409

B-D Electrodyne Division, Becton Dickinson and Company (Grant)

Boston City Hospital Purchase Order 1176-21-335

Peter Bent Brigham Hospital Purchase Orders F64088 and F65806

M.I.T. Sloan Fund for Basic Research

M.I.T. Thomas C. Desmond Fund

Clarence J. LeBel Fund

THIS DOCUMENT HAS BEEN APPROVED FOR PUBLIC
RELEASE AND SALE; ITS DISTRIBUTION IS UNLIMITED.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
RESEARCH LABORATORY OF ELECTRONICS

QUARTERLY PROGRESS REPORT No. 109

April 15, 1973

Submitted by: H. J. Zimmermann
G. G. Harvey
S. J. Mason

THIS DOCUMENT HAS BEEN APPROVED FOR PUBLIC
RELEASE AND SALE; ITS DISTRIBUTION IS UNLIMITED.

INTRODUCTION

This report, the hundred and ninth in a series of quarterly progress reports issued by the Research Laboratory of Electronics, contains a review of the research activities of the Laboratory for the three-month period ending February 28, 1973. Since this is a report on work in progress, some of the results may not be final.

