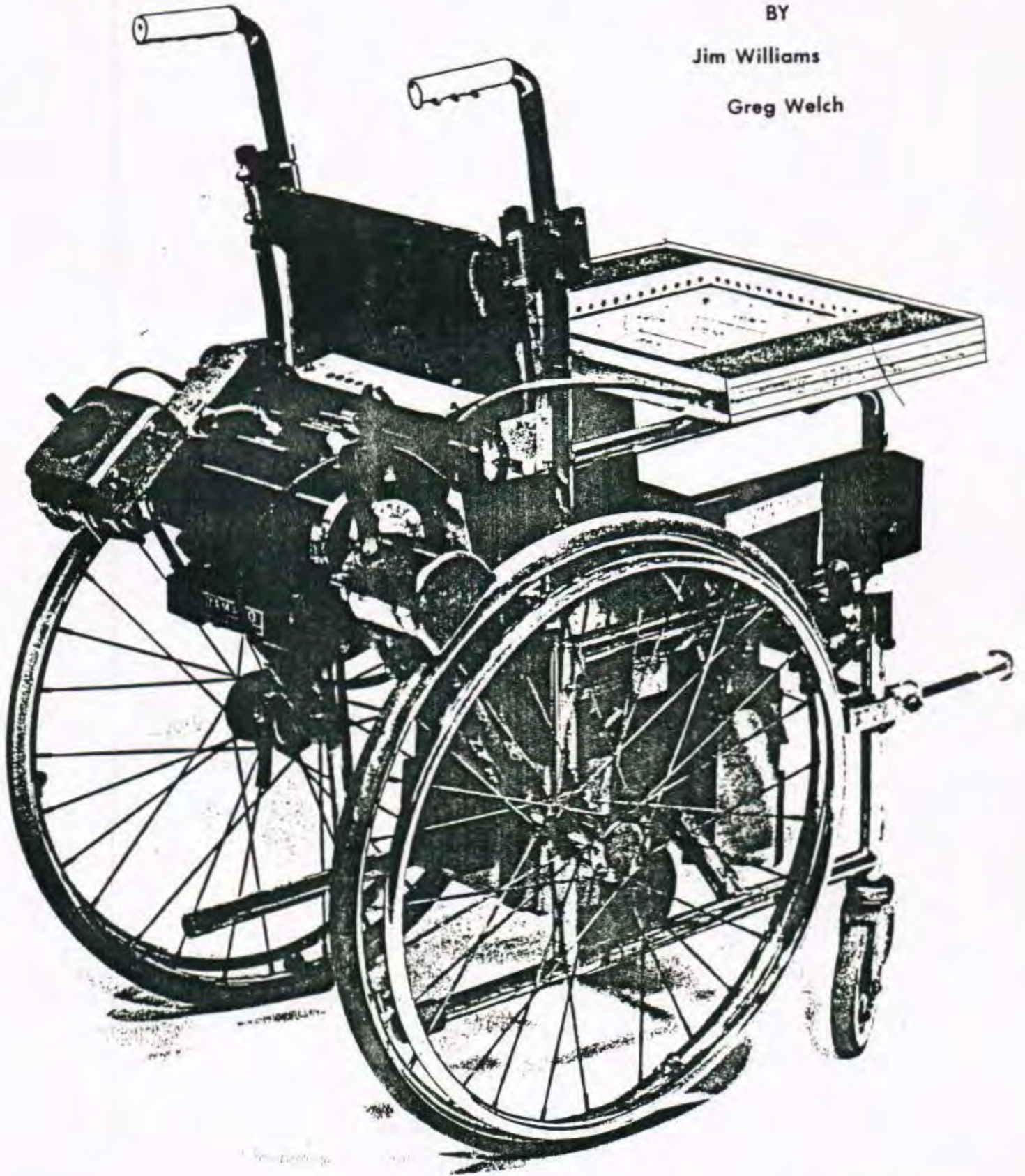


# THE EASY CHAIR

BY

Jim Williams

Greg Welch



## THE EASY CHAIR

James P. Williams - Gregory F. Welch

May 5, 1986

### WHAT IS IT?

- Microprocessor controlled wheelchair
- Aid to handicapped (cerebral palsy victims)
- Learning tool for children with inexperience in mobility
- Effective means of introduction to powered mobility
- Funded by The Wabash Center (for handicapped children) in West Lafayette, Indiana

### SPECIFICATIONS

- Must add safeguards to powered mobility
- Must introduce a "force-free" method of input
- Should be removable without defacing the wheelchair
- Should be adaptable as child develops motor skills

### DESCRIPTIONS

- Overall block diagram
  - G > Touch pad - *Drum probe, etc.*
  - J > Ultrasonics
  - G > Computer - *New (re-written) monitor*
  - J > Tone generator
  - G > Motor control - *SHA (4 bit) zero span*
  - J > Power supply

### TEST RESULTS

- G - Touch Pad & Ultrasonics
  - > Verified hardware operation (general)
  - > Used software test routines
- G - Motor control
  - > Monitored with oscilloscope
    - = Initial design produced incorrect references
    - = Modified to better meet specifications, and allow for offset & range adjustments
- J - Power supply
  - > Monitored battery voltage with storage scope
    - = Developed plots and determined that current design was sufficient
    - = Regulator moved outside of enclosure for reduced temperature

### TIME ACTION PLAN

- G - Major portion completed on time (or ahead of schedule)

### COST

- J - Development cost slightly exceeded projected cost (due to miscellaneous development expenses)

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