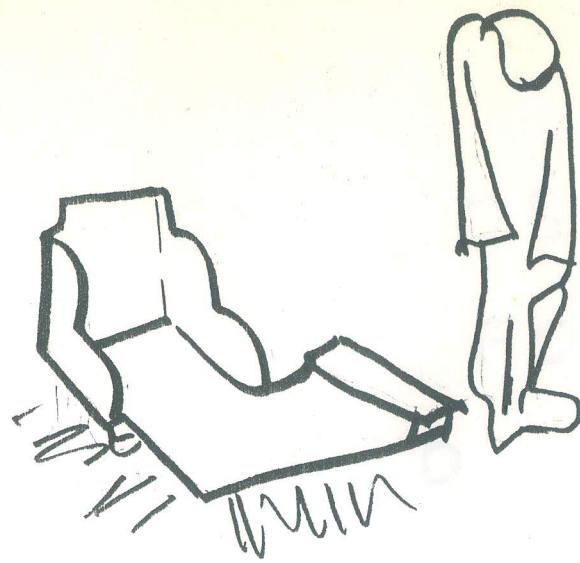




DOCUMENTATION
OF
LOW COST LOW LEVEL
MOBILITY AIDS FOR THE
PHYSICALLY HANDICAPPED

✓ Pooznima Shetty

MSR -
16th PD/94-96
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DOCUMENTATION OF LOW COST LOW LEVEL MOBILITY AIDS FOR THE PHYSICALLY HANDICAPPED.

BY

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GUIDE

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1996

APPROVAL SHEET

The special project titled " DOCUMENTATION OF LOW COST
LOW LEVEL MOBILITY AIDS FOR THE PHYSICALLY HANDICAPPED "
by Ms POORNIMA K SHENOY (94613002) is approved in
partial fulfillment of the requirements for the
MASTERS IN INDUSTRIAL DESIGN

GUIDE



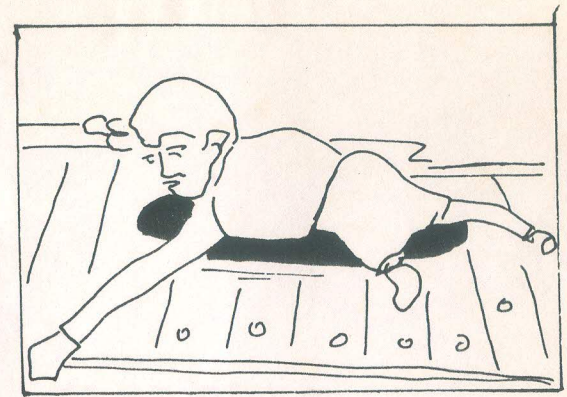
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IT'S NOT BEING 'NORMAL'
THAT'S IMPORTANT BUT LEARNING
TO ACCEPT THEIR BEING DIFFERENT
LET'S ACCEPT THEM AS 'SPECIAL'
PEOPLE AND MAKE THIS WORLD A
BETTER PLACE FOR THEM TO LIVE.

.....this work is dedicated to these special
people.....



SKATE BOARD

- * DIMENSIONS VARY (CASE TO CASE BASIS).
- * COST IRS 200 UPWARDS.
- * MATERIAL OF THE BOARD IS WOOD OR HDPE.
- * WHEELS ARE MADE OF WOOD OR HDPE.
- * AID CAN BE USED BY ANY AGE GROUP.
- * POLIO, AMPUTATION OF LOWER LIMBS, CERE^{PALSY}BRAL_L VICTIMS MAY USE THIS AID.
- * INDOOR AID.
- * USER SQUATS ON THE BOARD & MOVES LINEARLY.



PATLA (WOODEN BOARD)

- * DIMENSIONS : 1' X 1' OR 1' X 1 1/2' .
- * COST IRS 200 (WITH WHEELS).
IRS 600 (WITH CASTORS).
- * PATLA IS MADE OF WOOD.
- * WHEELS ARE MADE OF MS.
- * CASTORS READILY AVAILABLE ARE USED.
- * USERS MAY BE OF ANY AGE GROUP.
- * POLIO, AMPUTATION OF LOWER LIMBS
USE THIS AID.
- * USER SQUATS ON THE PATLA AND DRAGS THE
PATLA WITH A NORMAL FOOT OR HAND.



CRAWLER

- * DIMENSIONS VARY (CASE TO CASE BASIS).
- * COST APPROXIMATE IRS 800
- * CANVAS OR NYLON IS FIXED ON TO A MILD STEEL FRAME.
- * USED MOSTLY IN THERAPY FOR CHILDREN WITH DELAYED DEVELOPMENT OR CEREBRAL PALSY.
- * INDOOR AID.
- * USER LIES ON THE FABRIC ON HIS/HER CHEST AND CRAWLS WITH BOTH HANDS AND BOTH FEET & CAN MOVE IN ALL DIRECTIONS.



SCOOTER BOARD

- * DIMENSIONS VARY (ON CASE TO CASE BASIS).
- * COST IRS 700.
- * MADE OF WOOD. LEATHER OR REXIN WITH SPONGE PADDING IS USED AS CHEST SUPPORT.
- * CASTORS ARE PROVIDED.
- * THIS AID IS USED IN THERAPY FOR CHILDREN UP TO 15 YEARS OF AGE.
- * INDOOR AID.
- * USER MAY HAVE CEREBRAL PALSY OR POST OPERATIVE THERAPY.
- * USER LIES ON THE BOARD WITH HIS/HER CHEST AND PUSHES FORWARD THE BOARD WITH BOTH HANDS.



TROLLEY WITH WHEELS

- * DIMENSIONS VARY ON CASE TO CASE BASIS.
- * COST IRS 500 UPWARDS.
- * MADE OF WOOD OR HDPE.
- * USERS ARE CHILDREN WITH NO SITTING BALANCE, CEREBRAL PALSY OR MUSCULAR DYSTROPHY.
- * CAN BE USED BOTH INDOORS AND OUT DOORS.
- * MOST VERSATILE AID AND COMMONLY RECOMMEND.
- * THIS CAN BE MODIFIED ON A CASE TO CASE BASIS.
- * MOULDED SEATS CAN BE FITTED ON TO TROLLEY SEAT.



COLLAPSABLE CART

*THIS AID IS IN THE PROCESS OF BEING DEVELOPED FOR PARALYSIS OF LOWER LIMBS AND SPINAL PROBLEMS. PRESENTLY PROTOTYPE IS MADE OF WOOD (COULD BE MADE OF BAMBOO).PRESENTLY TARGETTED FOR CHILDREN UP TO 15 YEARS WHO ARE NOT OBESE. PATIENT CAN TILT THIS AND ACHIEVE A STANDING POSITION. CAN BE USED AS BOTH INDOOR AND OUT DOOR AID .

*COST APPROXIMATE IS ABOUT 1500 IRS.



CORNER CHAIR

- * DIMENSIONS VARY CUSTOM MADE.
- * COST IRS 500.
- * MATERIAL OF THE SEAT IS WOOD AND THAT OF SIDE SUPPORTS IS HDPE.
- * CASTORS ARE PROVIDED.
- * USERS ARE CHILDREN UP TO 7 YEARS OF AGE.
- * CEREBRAL PALSY DELAYED DEVELOPMENT OR POLIO VICTIMS USE THIS AID
- * INDOOR AID.
- * USER SITS ON THE CHAIR AND USES FEET (EITHER OR BOTH) TO MOVE . IF NECESSARY USER IS STRAPPED ON TO THE CHAIR.



STOOL WITH CASTORS

- * DIMENSIONS VARY ON CASE TO CASE BASIS.
- * COST APPROXIMATE IRS 700.
- * MADE OF WOOD.
- * AID CAN BE USED BY ANY AGE GROUP.
- * USED AS WALKER BY CHILDREN.
- * ADULTS SQUAT ON THE STOOL AND USE IT AS A MOBILITY AID.
- * BINDOOR AID.



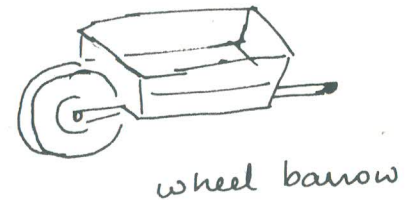
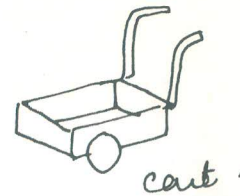
BUCKET CHAIR

- * MADE OF OLD BUCKET.
- * THIS IS A STUDENT PROJECT OF HAJI ALI RE-HAB CENTRE. THIS PROJECT IS IN THE DEVELOPMENTAL STAGE AND TARGETTED FOR CHILDREN OF RURAL AREAS. AT PRESENT TARGETTED FOR CHILDREN WITH CEREBRAL PALSY, MUSCULAR DYSTROPHY PROVISION IS MADE TO STRAP THE PATIENT TO THE CHAIR IF NECESSARY.
- * COST APPROXIMATE 500IRS.



MOULDED CHAIR

- * DIMENSIONS VARY (CUSTOM MADE).
- * COST IRS 700 UPWARDS.
- * MATERIAL : PUF.
- * CASTORS ARE PROVIDED.
- * RECOMENDED FOR CEREBRAL PALSY AND MUSCULAR DYSTROPY PATIENTS.
- * INDOOR AID.
- * USER CAN BE PUSHED AROUND OR CAN MOVE BY ONE SELF.



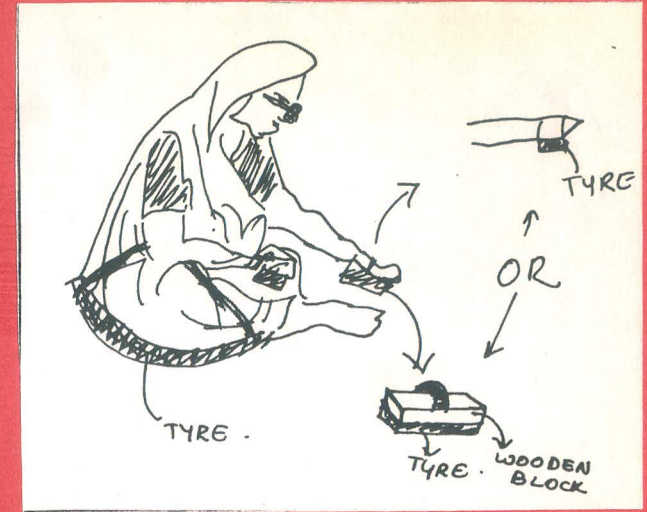
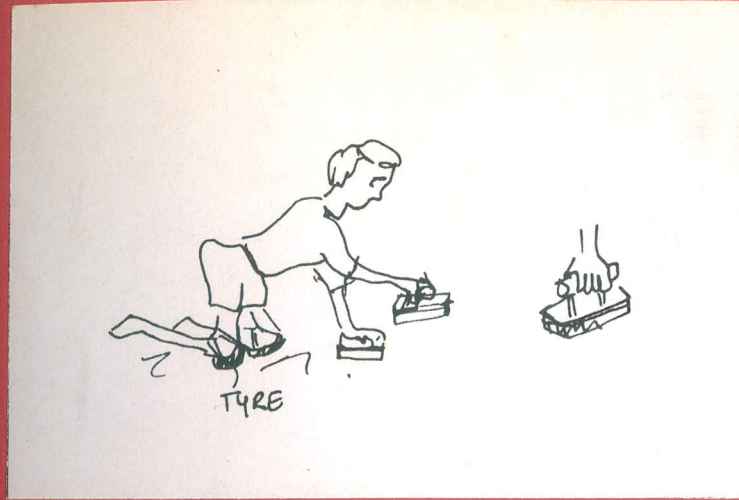
WHEEL BARROW AND CART

- * DIMENSIONS VARY
- * COST IS NIL IF MADE BY CONVENTIONAL MATERIALS (BAMBOO) OTHERWISE GREATER THAN IRS 1000.
- * ANY AGE GROUP WITH ANY KIND OF DISABILITY CAN USE THIS AID.
- * DISABLED PERSON SITS IN ~~THE~~ AND IS PUSHED BY ANOTHER PERSON. USED AS A WALKER BY CHILDREN.



MODIFIED PRAM

- * COST IRS 700 UPWARDS.
- * CANVAS SEAT AND BACK REST IS FITTED ON TO ALUMINIUM FRAME.
- * WHEELS ARE PROVIDED.
- * USED FOR CHILDREN UP TO 18 YEARS WITH ANY KIND OF DISABILITY (NOT FOR OBESE CHILDREN) HOWEVER THE PRAM CAN BE MODIFIED ACCORDING TO THE USER.
- * INDOOR AND OUTDOOR AID.
- * USER CANNOT MOVE BY ONESELF AND HAS TO BE PUSHED AROUND.

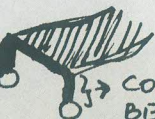
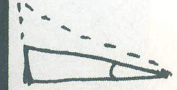


WHEELLESS MOBILITY AIDS

- * COST : NIL.
- * IN CASE OF OLD PEOPLE NYLON (TYRE) WASTE / USED BITS CAN BE STRAPPED ON TO THE BUTTOCKS AND PALMS. THE USER THEN USES HANDS FOR DRAGGING THE BUTTOCKS FORWARD.
- * IN CASE OF OF YOUNGER PEOPLE WITH BOTH LIMBS DEFECTIVE TYRE BITS CAN BE STRAPPED ON TO KNEE CAP AND HAND, AND THE PERSON CAN CRAWL.

TROLLEY WITH WHEELS.	COLLAPSABLE CART	CORNER CHAIR	STOOL WITH CASTORS	MOULDED CHAIR
VARY	NOT FINALISED	VARY	VARY	VARY
₹500 IRS	NOT FINALISED	₹500 IRS	₹700 IRS	₹700 IRS
WOOD OR HDPE	WOOD	WOOD (SEAT) HDPE (SIDES)	WOOD	P.U.F
CHILDREN AGE DEPENDS ON TYPE OF DISABILITY e.g.:- in MD upto 15 yrs	SHOULD BE FOR ANY AGE NOW TARGETTED FOR CHILDREN	CHILDREN UP TO 7 YRS OF AGE	CHILDREN & ADULTS	CHILDREN UP TO 10 YEARS
CHILDREN WITH NO SITTING BALANCE. MUSCULAR DYSTROPHY. CEREBRAL PALSEY.	PARALYSIS OF LOW BODY SPINAL PROBLEMS	• CEREBRAL PALSEY • DELAYED DEVELOPMENT • POLIO	ADULTS: ANY LOWER LIMB DEFECTS CHILDREN: CEREBRAL PALSEY, DELAYED DEVELOPMENT	• CEREBRAL PALSEY • DELAYED DEVELOPMENT
BOTH INDOOR & OUT DOOR AID	BOTH INDOOR & OUT DOOR AID	INDOOR AID	INDOOR AID.	INDOOR AID
• MOST VERSATILE CAN BE MODIFIED TO SUIT VARIOUS DISABILITIES BY ADDITION OF MOULDED SEAT etc • ALLOWS 360° MOTION : BACK WHEEL TURNS.	.	• HAS SHARP EDGE & CORNER • PADDING SHOULD BE PROVIDED • HEIGHT SHOULD BE MADE ADJUSTABLE	• CHILDREN USE IT AS A WALKER. IT IS DANGEROUS AS CAS- TORS DONT HAVE BRAKES • ADULTS SIT ON IT A MOVE WITH A NORMAL FOOT.	• THIS CHAIR HAS NO STRAPS TO RESTRAIN THE CHILD ON TO THE CHAIR

	SKATE BOARD	PATLA	CRAWLER	SCOOTER BOARD
DIMENSIONS	VARY	1'x1' OR 1'x1½'	VARY	VARY
COST	≈ 200 IRS	200 IRS WITH WHEELS 600 IRS WITH CASTORS	800 IRS	700 IRS
MATERIAL	BOARD: WOOD OR HDPE WHEELS: WOOD OR HDPE	BOARD: WOOD WHEELS: MILD STEEL CASTORS: READILY AVAIL- -ABLE ONES ARE USED	CANVAS FITTED ON TO MILD STEEL FRAME	BOARD: WOOD CHEST: LEATHER PAD WITH SPONGE
USER AGE GROUP	ANY AGE GROUP	ANY AGE GROUP WITH SITTING BALANCE.	CHILDREN UP- TO TWO YEARS	CHILDREN UP TO 15 YEARS OF AGE.
TYPE OF DISABILITY	• POLIO • AMPUTATION • CEREBRAL PALSEY	• POLIO • AMPUTATION • BIRTH DEFECTS OF LOWER LIMBS	• DELAYED DEVELOPMENT • CEREBRAL PALSEY	• CEREBRAL PALSEY • POST OPERATIVE TREATMENT
TYPE OF AID	INDOOR AID	INDOOR AID	USED IN THERAPY INDOORS	USED IN THERAPY INDOORS.
OBSERVATIONS	- SITTING AREA IS VERY LESS - ONLY LINEAR MOTION IS POSSIBLE WITH DIFFICULTY CAN ACHIEVE CURVED MOTION	- CHANCES OF SLIPPING OFF THE PATLA ARE HIGH AS THERE IS NO BACK REST OR ARM REST. - WHEELS ALLOW LINEAR MOTION ONLY - CASTORS ALLOW 360° MOTION	- MILD STEEL FRAME COULD BE MADE IN A WAY TO ACHIEVE ADJUSTABLE HEIGHTS  • COULD BE MADE ADJUSTABLE • ALLOWS 360° MOTION	- ANGLE OF INCLINATION CAN BE MADE ADJUSTABLE.  • ALLOWS 360° MOTION

CRAWLER	SCOOTER BOARD	BUCKET CHAIR	WHEEL BARROW & CART	MODIFIED PRAM	WHEEL LESS AIDS
VARY	VARY	MADE OUT OF 20LT BUCKET HT: 112"	VARY	VARY	SIZE OF TYRE BITS VARY
800RS	700RS	NOT FINALISED	>1000RS LESS IF MADE BY CONVENTIONAL MATERIALS	>700RS	- NIL -
CANVAS FITTED ON TO MILD STEEL FRAME	BOARD: WOOD CHEST: LEATHER PAD WITH SPONGE	HDPE	WOOD OR MILD STEEL	CANVAS SEAT & BACK REST ON ALUMINIUM FRAME	OLD NYLON ON VEHICLE TYRES.
CHILDREN UP-TO TWO YEARS	CHILDREN UP TO 15 YEARS OF AGE.	TARGETED FOR CHILDREN UP TO 7 YRS.	ANY AGE GROUP	UP TO 18 YRS OF AGE	ANY AGE GROUP
• DELAYED DEVELOPMENT • CEREBRAL PALSEY	• CEREBRAL PALSEY • POST OPERATIVE TREATMENT	• CEREBRAL PALSEY • MUSCULAR DYSTROPHY • DELAYED DEVELOPMENT	ANY KIND OF DISABILITY DOWNERS CP, DD, MD	ANY KIND OF DISABILITY	ANY KIND OF LOWER LIMB DISABILITY
USED IN THERAPY INDOORS	USED IN THERAPY INDOORS.	BOTH INDOOR & OUT DOOR AID	BARROW: OUTDOOR CART: MAY BE INDOOR & OUT DOOR ALSO.	INDOOR & OUTDOOR AID.	INDOOR & OUT DOOR AID.
MILD STEEL FRAME COULD BE MADE IN A WAY TO ACHIEVE ADJUSTABLE HEIGHTS  • COULD BE MADE ADJUSTABLE • ALLOWS 360° MOTION	LIL OF INCLINATION CAN BE MADE ADJUSTABLE.  • ALLOWS 360° MOTION		• BARROW AND CART ARE USED TO TRANSPORT THE DISABLED. • CART CAN BE USED AS A WALKER ALSO IF MODIFIED.	• USER CANNOT MOVE BY ONE SELF. • DUE TO ITS COMPACT SIZE, SITTING POSTURES ARE NOT ERONO-MIC	• NOT VISUALLY APPEALING.