(2) WHEEL ASSEMBLY

The two front wheels form a single assembly; they are connected rigidly with a 22 in axle (since these wheels are not powered, a friction hold is sufficient) which rotates in place in two brackets that are anchored to the frame.

Exploded View of right side rear wheel assembly:

The left side, rear motor assembly is identical, except for the direction the motor faces.

The wheel is anchored to the hub, as is the shaft of the motor. The motor is clamped to the shaft clamp bracket. The bracket is clamped to the frame (not shown).
(II) BUCKET-RAISING ARM

CLOSE-UP (A): Pivot Point which rotates when the motor forces the other arm to turn.

- Rounded/Chamfered End: The arm rests on a piece of frame when down, so the square end of the arm must be rounded off.
- Ball Bearing
  O.D. = 0.75
  I.D. = 0.25
  Pin d = 0.25
- Bolts: through piece of frame

ITEM (B): The motor has four bolt holes through the face mount. A stat will be added off the main frame wherever necessary to accommodate.

The frame of the robot is probably 90-95% correct; any motor positioning is 75% at best because mounting issues are not visible on paper.

Joachim Hartje
(III) BALL-SORTING BIN

SIDE VIEW

- Motor
- 1 inch

Top

5

Front

3.5

Back

Bottom 13

If the filter fails to function properly, several new designs can be cut out of sheet metal very quickly for testing.

Gaps of 2.0 inch width:
- Plenty big enough to snug
- Golf ball = 1.61 in, but not
- Enough to become jumbled
- Tennis ball = 2.5 in

Top View

[for the ball filter]

- Bridges of 0.25 inch:
- Sturdy enough to
- Resist breaking but
- Not big enough for balls
- To rest on

FRONT

BACK

- Both of the sides are completely covered with sheet metal.
- The top is open to allow balls to be poured in, the middle holey to filter.
- On the front, the bottom half of the bin is open to pour golf balls into the bucket; on the back, the top half is open to put tennis balls in the bin.
- There are three ways to attach the sheet metal, in order from hardest to best:
  - Weld the sheet metal to the frame exterior at corners (no dismantling).
  - Bolt the sheet metal to the frame at intervals.
  - Slide the sheet metal into the central slots of the 80-20 expanded Al.
(IV) FRONT VIEW

Joachim Hartje

Fingers of Arm with $x = \varnothing$ bucket at $nm = 7.5$ in
$y = \varnothing$ bucket at $nm = 7.5$ in

Splash guard with $y > \varnothing$ tennis ball

Tennis ball top bin with $y = 2 \varnothing$ tennis ball = $2 (2.5) \text{ in}$

Golf ball bottom bin with $y = 2 \varnothing$ golf ball = $2 (1.68) \text{ in}$

Auto-stop for front tilt with $y = 1 \text{ in}$ drop allowed

Double Reduction Globe Motor

59 RPM 12 V Merkle-Korff Gearmotor

44 RPM Right Angle Drive Gearmotor (1 of 2)

Back Wheel (Driven)
Front Wheel (Free Spin)
(V) SIDE/PROFILE VIEW

JOACHIM KARTEJ

OPERATIONS
- A: Lift the bucket with the arm.
- B: Put the bucket down.
- C: Back away, then put the arm in the elevated position.
- D: Approach the bucket and drop the golf balls back in.