

## Tilt

- Pivot
  - o Hinge
  - o Platform
  - o Bearings / Bushings
- Tilt Resistance
  - o Compressible Bushings
  - o Hydraulics / Pneumatics
  - o Springs
  - o Rubber Bands
  - o Weighted Pulleys
  - o Worm Gear
  - o Electro-magnetic shocks
  - o Gas Shocks
  - o Airbags
- Tilt Level
  - o Movable Bump Stops
  - o Pin Lock Bump Stops
  - o Worm Gears
  - o Actuators
  - o Bushing
  
- Steering – to correct bike tilt when turning
  - o Pulley system
  - o Electric
  - o Hydraulic
  - o Mechanical

## Mount / Dismount

- Locked Position
  - o Friction Lock
  - o Movable Bump Stops
  - o Robust Pin Lock
  - o Lever?
- Bicycle to floor
  - o Drive anchors
  - o Legs
  - o Wide base plate
  - o Platform
  - o

## Cross-member

- Stationary
  - o Low Cross-member
  - o Removable Seat

- Movable
  - o Rotating
  - o De-couple
  - o Telescoping

#### Seat Height

- Sliding
  - o Compression Clamp
  - o Pin-lock
  - o Hydraulic / Pneumatic
  - o Worm Gear / Electric Screw
  - o Crank Gear

#### Feedback System

- Sensors
  - o Angular displacement
  - o Accelerometer
  - o Switch
  - o Metal Sensor (key)
  - o Pressure (hydraulic/pneumatic)
  - o Electronic Eyes
  - o Gyroscope
  - o Digital Level
  - o Force Sensor (hard stops)
  - o Linear Sensor (need conversion)
  - o Weight Sensors (on seat)
  
- Signal Processing
  - o Micro-computer
  - o Laptop → visual display
  - o Processor?
  
- Auditory Feedback
  - o Speaker
  
- Visual Feedback
  - o LED's
  - o Incandescent Lights
  - o Traffic Lights
  - o Strobe Light
  
- Steering – to correct bike tilt when turning
  - o Pulley system
  - o Electric
  - o Hydraulic
  - o Electronics –sensor based

\*\*Note: Should have limited correction factor

We do not want the patient to be able to “cheat” via steering.  
Possibly only to correct when in “danger” zone back to safe leaning zone.

- Pedal
  - Mechanism
    - Shaft Driven
    - Belt
    - Chain
    - “Free Wheel”
    - Magnetic
  - Resistance
    - Gears
    - Fluid
    - Friction
    - Constant