# Failure Mode Analysis

Head module:

* User commands
  + Run out of memory when user settings are stored into the memory
  + Data retention voltage falls threshold voltage
  + Unstable wire connections with EIA 232 interface (for debugging)
  + Unwanted multiple button interrupts
* Vibration motors
  + PWM output could be too low to drive multiple motors
  + Extrinsic capacitance affecting 8 bit output of the PWM
  + Overheats and uncomfortable for user
* Distance Sensors
  + Error analysis of distinguishing the two distance sensors
  + Run out of memory with two sensors inputting data
  + Interruption from other ultrasonic waves
* PIR sensor
  + Transient faults in data input from sensor
  + Noise and/or vibration of sensor cause incorrect input

Knee module:

* Vibration motors
  + Corrupted data from head module to control motors
  + Overheats and uncomfortable for user
* Distance Sensor
  + Corrupted data from slow I2C connection
  + Interruption from other ultrasonic waves