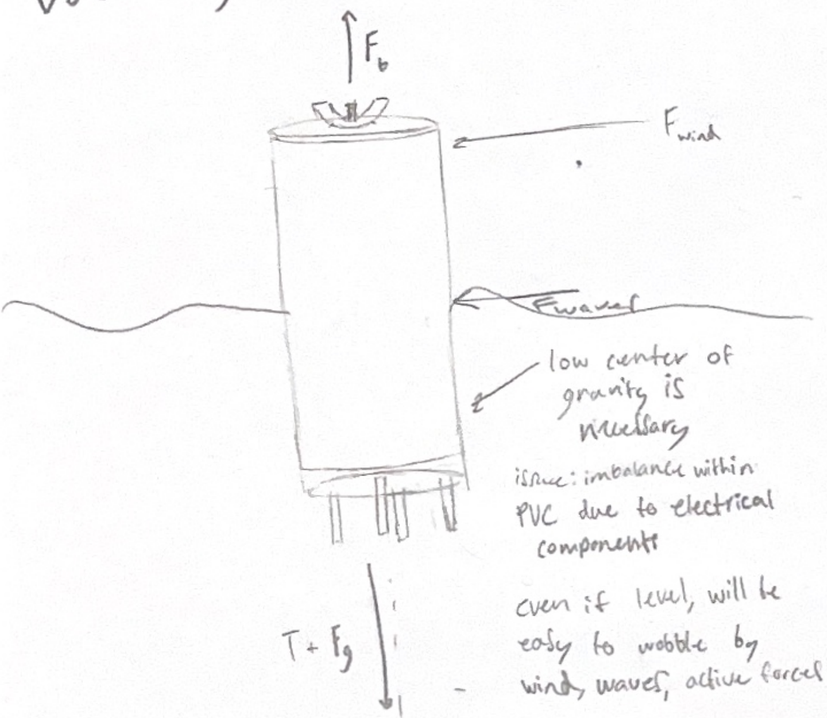
Balancing Forces



low center of gravity is necessary

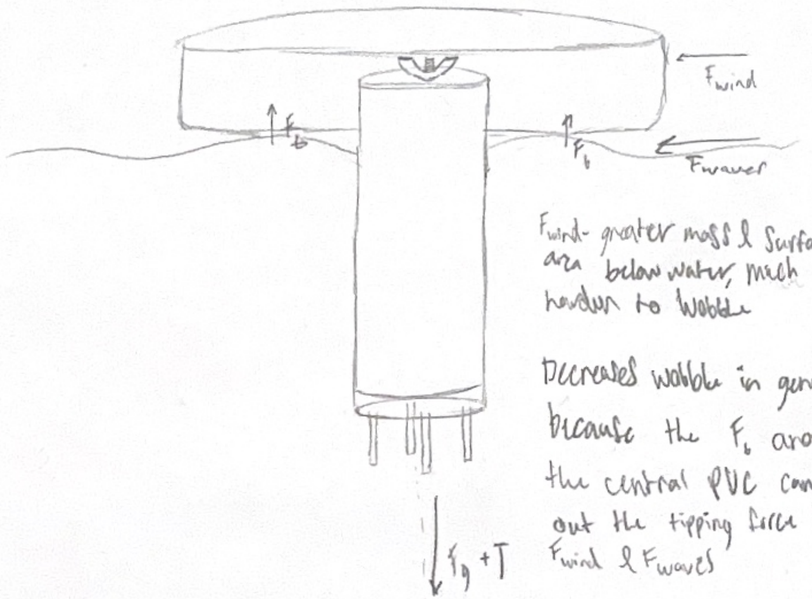
issue: imbalance within PVC due to electrical components

even if level, will be easy to wobble by wind, waves, active forces

F_{wind} - the greater surface area above water in ratio to that below water, the greater impact F_{wind} will have on stability

F_{waves} - stronger force than F_{wind} but concentrated lower on the sensor so effect is hampered. Still would create wobbles which could effect readings, especially depth.

anchor



F_{wind} - greater mass & surface area below water, much harder to wobble

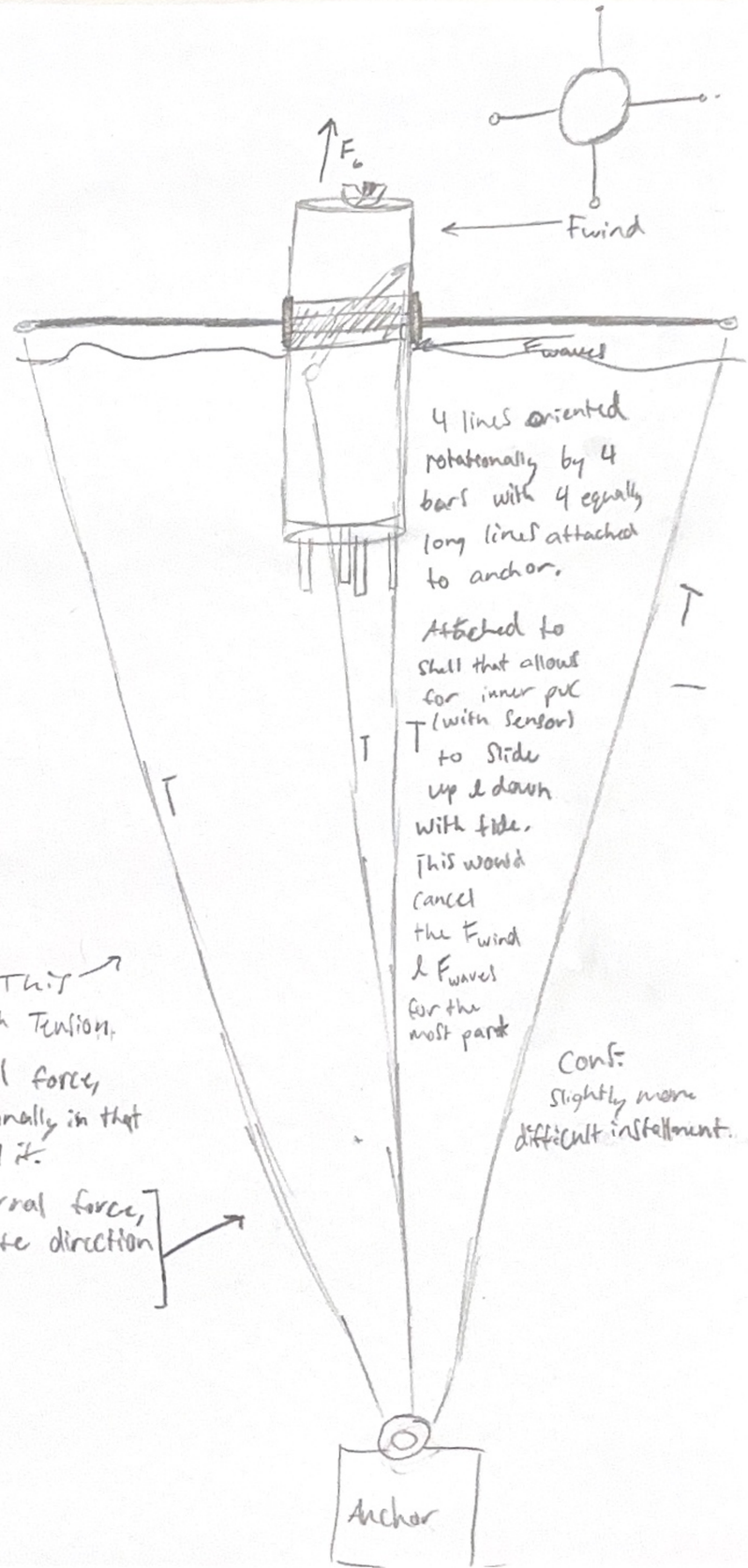
Decreases wobble in general because the F_b around the central PVC cancels out the tipping force like F_{wind} & F_{waves}

← This example balances with buoyancy while This → example balanced with Tension.

← [As PVC is tilted by external force, the buoyancy force rotationally in that direction increases to cancel it.

As PVC is tilted by external force, Tension force in opposite direction → increased to cancel]

Anchor



4 lines oriented rotationally by 4 bars with 4 equally long lines attached to anchor.

Attached to shell that allows for inner pvc (with sensor) to slide up & down with tide. This would cancel the F_{wind} & F_{waves} for the most part

Conc: Slightly more difficult installment.

Anchor