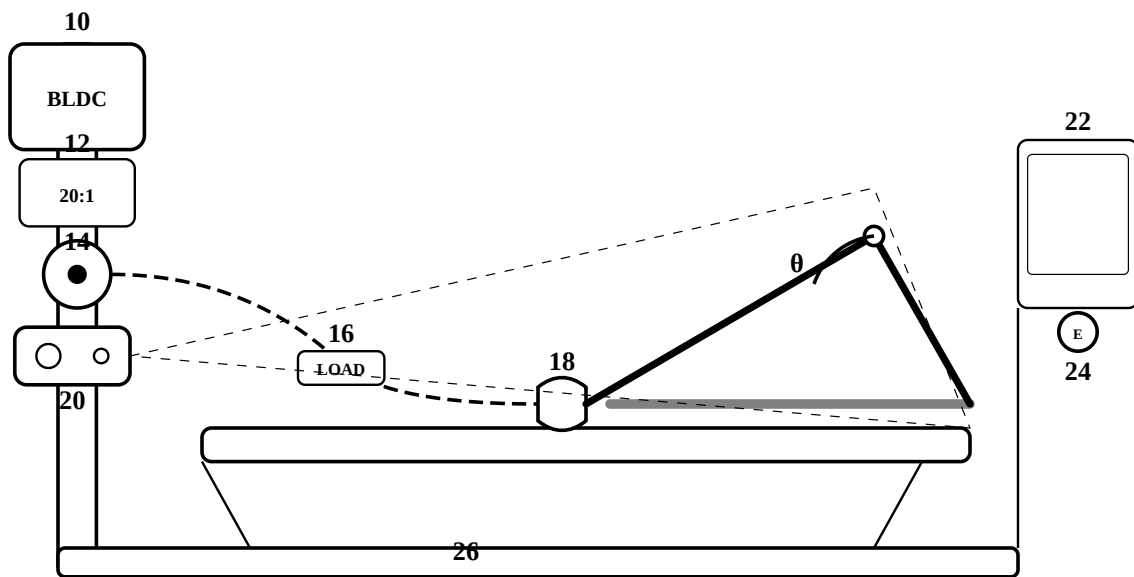


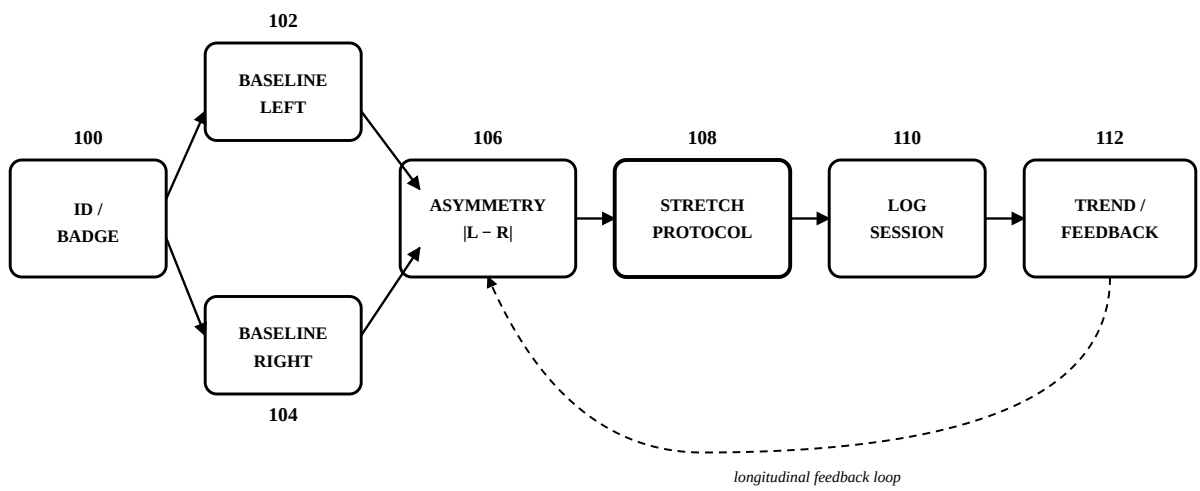
**FIG. 1**

*System Block Diagram*



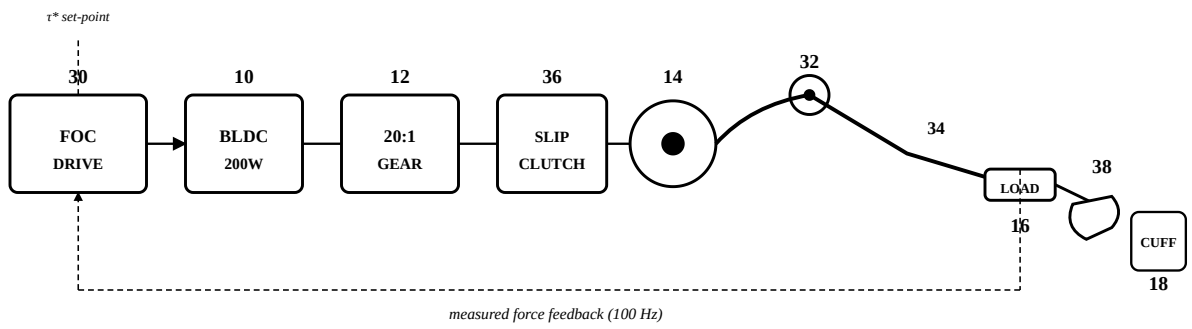
**FIG. 2**

*Apparatus Side-Elevation Schematic*



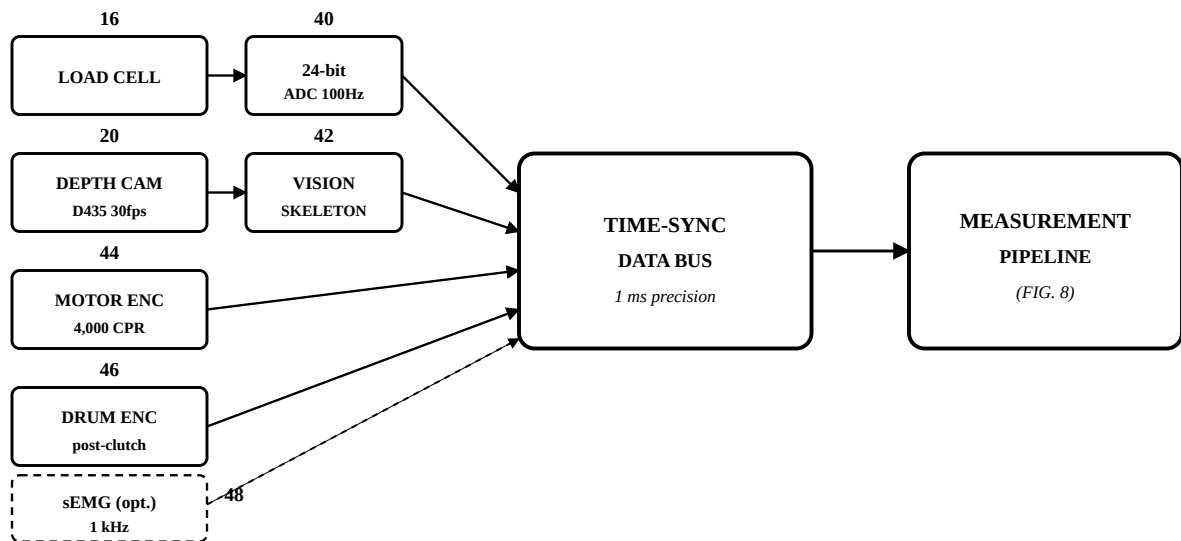
**FIG. 3**

*Method of Bilateral Longitudinal Assessment*



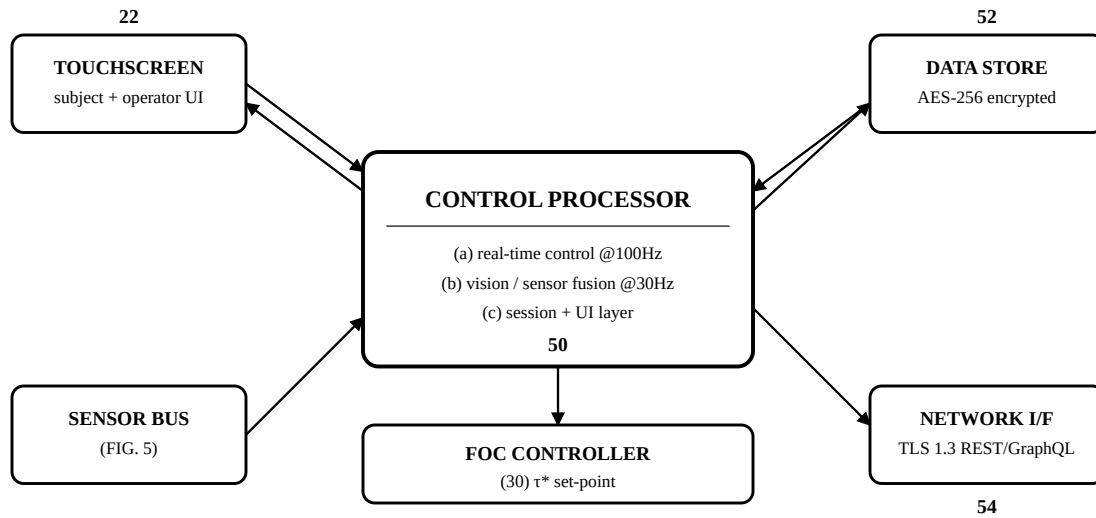
**FIG. 4**

*Cable Drive Assembly Detail*



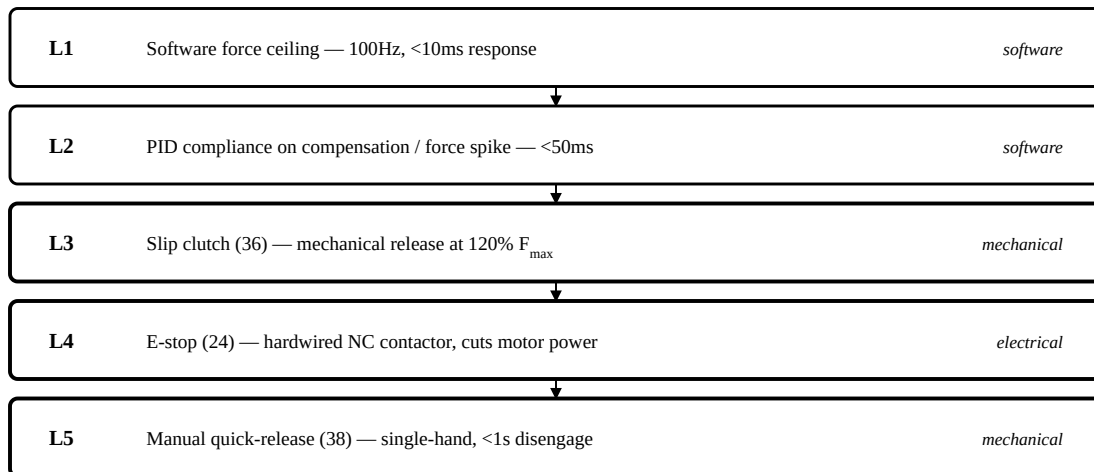
**FIG. 5**

*Sensor Array and Data Paths*



**FIG. 6**

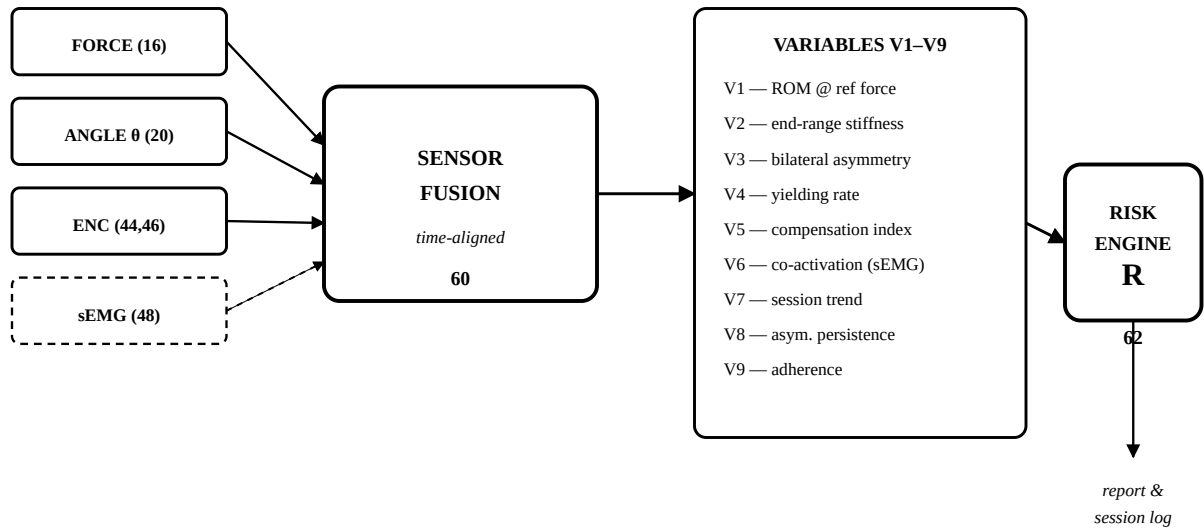
*Control and User Interface Architecture*



*Five independent layers — failure of one does not compromise the rest.*

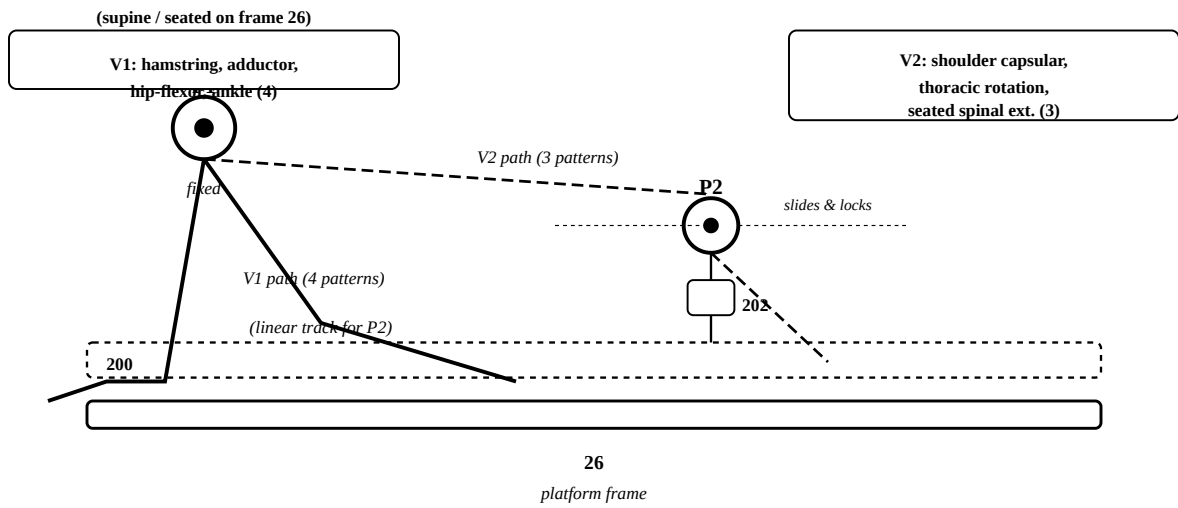
### **FIG. 7**

*Five-Layer Safety Cascade*



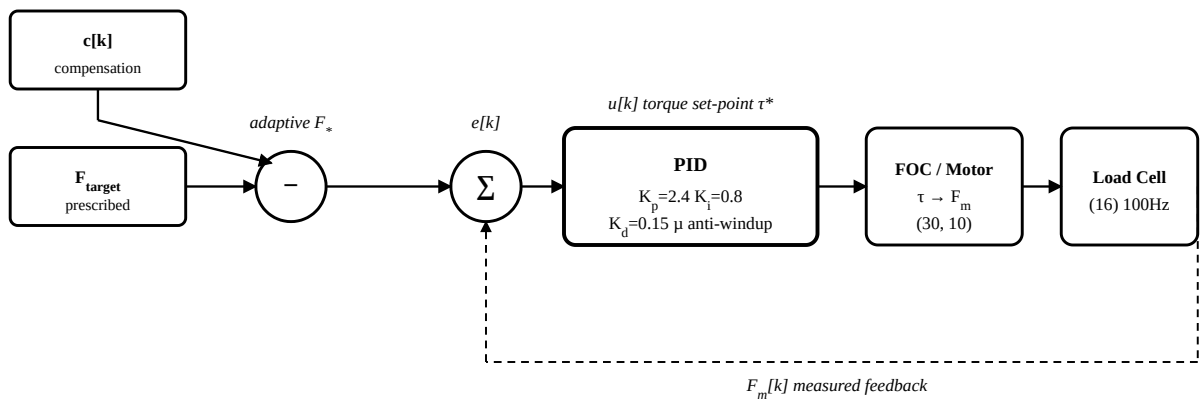
**FIG. 8**

*Measurement Extraction Pipeline*



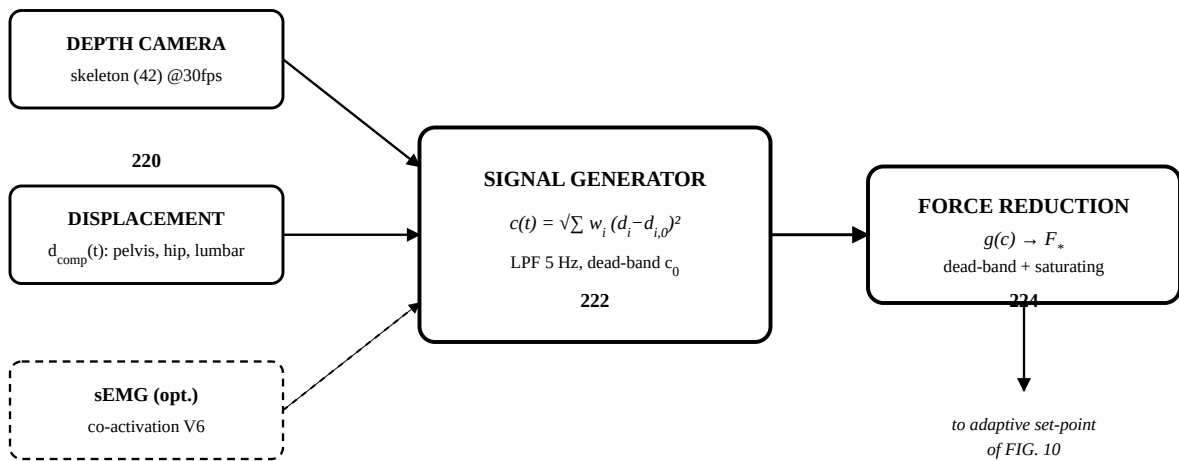
**FIG. 9**

*Multi-Pattern Reconfigurable Platform Geometry*



**FIG. 10**

*Closed-Loop Force-Compliance Controller*



**FIG. 11**

*Vision-Based Compensation Detection and Force Reduction*