ABET Addendum

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1. Desired Needs
    - Assess patients with dysphagia beyond typical High Resolution Manometry findings
    - A swallowing bolus that improves data acquisition during a manometry procedure
    - Translate esophageal related metrics into biomechanical properties
2. Major Constraints
    - Safety/Regulatory Affairs: Gel bolus must be free of allergens and biocompatible. Clinical data use must comply with HIPAA
    - Risks: Gel can lead to choking, infection, or inaccurate data if handled improperly. Missing data and computational errors can unintentionally influence results.
    - Manufacturability: Ingredients should be widely available, and production methods should be reproducible. The analysis pipeline must be compatible with different MATLAB versions.
    - Quality control: Viscosity, conductivity, shelf-life, and microbial contamination should meet standards, while testing should be reproducible.
3. Engineering Standards
    - IEC 60601-1-11:2015: Electrical manometry procedure equipment must be properly handled according to standard
    - ISO 10993-1: Evaluation and analysis of manometry equipment must follow standard's approach to reduce biological risk
4. Ethical, Environmental, Societal Concerns
    - Patients' rights must be protected by respecting patient autonomy, provide informed consent, and disclose confidential information
    - Improper disposal of gel and saline solutions can harm soil and environment
    - Clinical trials and data sets must fully represent all people who experience dysphagia.
5. Active Teamwork and Leadership
    - Collaboration encouraged open communication and participation during meetings
    - Delegation of lead roles for subprojects was based on technical ability and personal development goals
    - Deadlines, and progress checkpoints were set before starting major assignments, while accountability was reinforced through proactive communication.
6. Motivating Factors
    - Research-driven nature of our project motivated us to deepen our knowledge
    - Having strong, clear goals gave us a strong sense of direction, which pushed us to be self-initiating throughout the process
    - Desire to achieve meaningful, real-world results motivated us to overcome adversity
7. Innovative/Entrepreneurial Ideas
    - Analysis pipeline and gel bolus can be provided to clinics nationwide to provide comprehensive diagnoses to patients with different degrees of dysphagia