

TECH460

Module 4

Technology Selection and Design

Rubric

Criteria	Total
Include problem statement from previous deliverable	10
Identification of two alternative technologies	20
Qualitative analysis of technologies	20
Quantitative analysis of technologies	20
Technology selection and justification	40
High-level design	40
Total	150

Problem Statement

- Support Fitbit's addition of a blood pressure monitoring capability through design of a web and mobile app user interface with the following features:
 - Display blood pressure readings numerically and graphically
 - Track changes over time
 - Identify low/high readings and trends that may indicate health concerns

Alternative Technology Approaches

- New Progressive Web App (PWA)
 - Single blood pressure monitoring app for all platforms (web, iOS, Android)
 - Separate from existing Fitbit apps
 - Linked from existing Fitbit website
 - Single codebase implemented in HTML, CSS and JavaScript
- Website plus platform-specific extensions to existing apps
 - Web interface using HTML, CSS and JavaScript for browser access only
 - Extensions to existing Fitbit apps implemented in native code
 - iOS: Swift/Objective-C
 - Android: Java

Qualitative Analysis

- Progressive Web App (PWA)

- Advantages

- Faster development time
 - Reduced development cost
 - Reduced maintenance cost
 - Greater consistency across platforms

- Disadvantages

- Unable to integrate with existing mobile apps
 - Not visible in standard app stores
 - Limited user interface options
 - Limited access to native device features

- Website plus platform-specific extensions to existing apps

- Advantages

- Can integrate BP monitoring feature into existing apps
 - Fuller range of user interface options
 - Full access to native device features

- Disadvantages

- Separate development required for each platform
 - Higher development time and cost
 - Higher maintenance cost
 - Risk of inconsistency across platforms

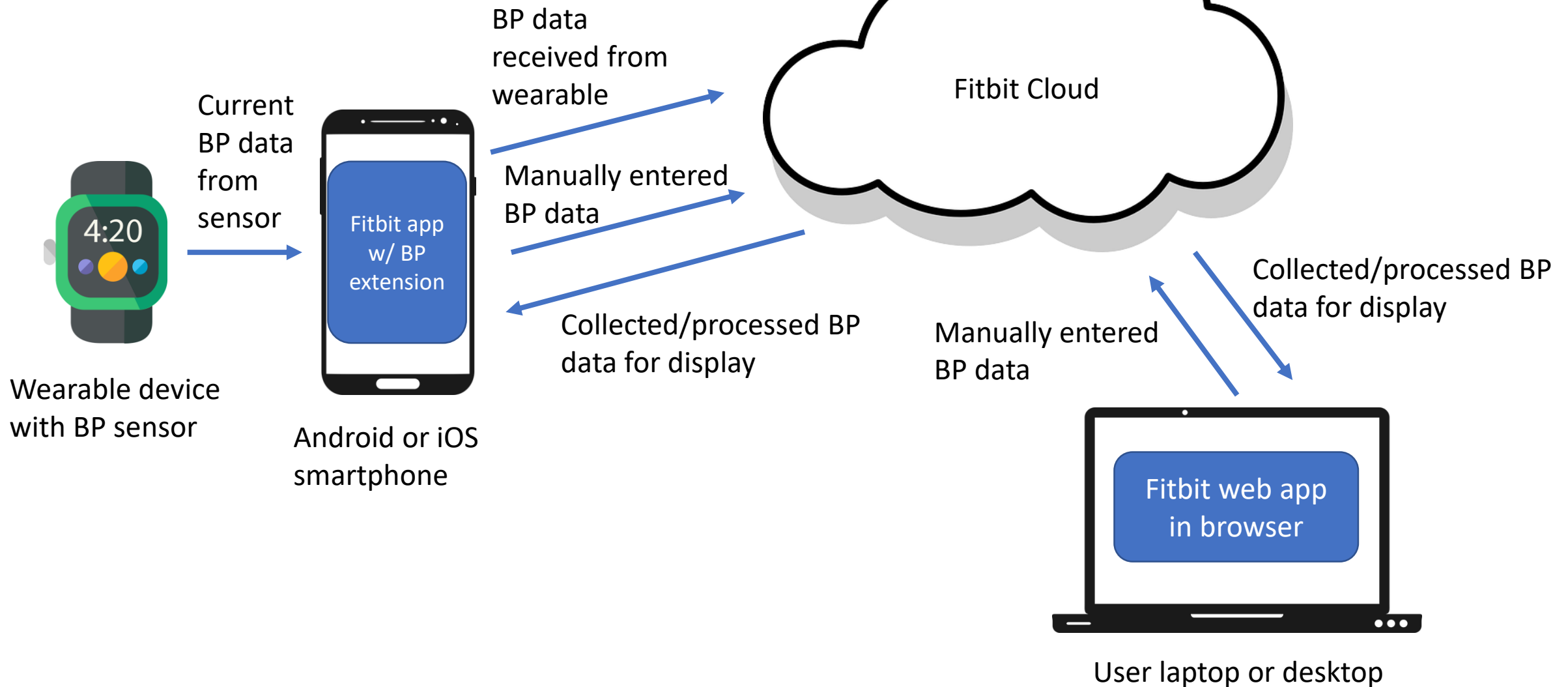
Quantitative Analysis

- Estimated development cost for PWA: **\$17K - \$20K**
- Estimated development cost for website plus platform-specific apps
 - Website: \$17K - \$20K
 - Android: \$17K - \$20K
 - iOS: \$17K - \$20K
 - **Total** **\$51K - \$60K** **3x higher cost due to separate development for each platform**
- Estimates based on Crowdbotics software development cost calculator with the following inputs:
 - Partial wireframes developed
 - Moderate visual appearance customization
 - Medium complexity
 - HIPAA compliance for health data
 - Pro developers (not necessarily USA-based)
 - 1 API integration
 - Regular updates
 - Moderate support level

Recommended Solution

- Website plus platform-specific extensions to existing apps
- Justification
 - Integration with existing Fitbit apps is top priority
 - Users will not want to download a separate app just for BP monitoring
 - Users will want to view BP data in context with other health and fitness data
 - Value of integration justifies higher development and maintenance costs

High-Level Design – Data Flow



High-Level Design – User Interface

