PLOS Component-Specific Integrations & UI Design Guide

This guide outlines the specific external integrations, data sources, UI elements, and animations for each PLOS component to create a cohesive, engaging, and thematic user experience.

1. ii Dashboard Page

External Integrations

- Weather API: OpenWeatherMap API for local weather conditions
- Calendar Integration: Google Calendar API for upcoming events
- News API: NewsAPI for personalized headlines based on interests

Analysis Features

- Daily Aggregation: Overall wellness score calculated from all modules
- Trend Analysis: Week-over-week comparison of key metrics
- Al Daily Brief: Personalized summary of patterns across modules

- 3D Welcome Element: Animated 3D text with Framer Motion + Three.js
- Particle Background: Subtle animated particles that respond to user interaction
- **Micro-interactions**: Cards that expand on hover with spring animations
- **Theme**: Gradient color scheme that changes based on time of day
- **Icons**: Phosphor or Lucide icons with micro-animations on hover

```
// Example animated welcome component
import { motion } from 'framer-motion';
import { useTheme } from 'next-themes';
import { useState, useEffect } from 'react';
export default function WelcomeBanner() {
  const { theme } = useTheme();
  const [greeting, setGreeting] = useState('');
  const [username, setUsername] = useState('');
  // Get time-based greeting
  useEffect(() => {
    const hour = new Date().getHours();
    const greetingText = hour < 12 ? 'Good Morning' :</pre>
                         hour < 18 ? 'Good Afternoon' :
                         'Good Evening':
    setGreeting(greetingText);
    // Get user name from store or API
   // ...
  }, []);
  return (
    <motion.div
      className={`p-6 rounded-2xl ${theme === 'dark' ? 'bg-gradient-to-r from-indigo-900 to-pur
      initial={{ opacity: 0, y: 20 }}
      animate={{ opacity: 1, y: 0 }}
      transition={{ duration: 0.5, type: 'spring' }}
      <motion.h1
        className="text-3x1 font-bold"
        initial={{ scale: 0.9 }}
        animate={{ scale: 1 }}
        transition={{ delay: 0.2, type: 'spring' }}
        {greeting}, {username} 🤏
      </motion.h1>
      <motion.p
        className="mt-2 text-lg opacity-80"
        initial={{ opacity: 0 }}
        animate={{ opacity: 0.8 }}
        transition={{ delay: 0.4 }}
```

2. Y Physical Health Tracker Page

External Integrations

- Apple Health/HealthKit: Steps, heart rate, workouts, sleep data
- **Fitbit API**: Alternative for non-Apple users
- Google Fit API: Another alternative for Android users
- **Strava API**: For running/cycling enthusiasts
- Oura Ring API: For detailed sleep metrics

Analysis Features

- Activity Pattern Recognition: Identifies optimal workout times
- Heart Rate Variability Analysis: Stress and recovery metrics
- Sleep Quality Assessment: Deep/REM/light sleep analysis
- Weekly Trend Comparison: Visual comparison with previous weeks

Personalized Recommendations

- Workout Suggestions: Based on previous activity and recovery status
- **Rest Day Recommendations**: Based on overtraining signals
- Sleep Optimization Tips: Based on sleep patterns and routines

- 3D Heart Model: Interactive heart that pulses with user's average HR
- ECG Line Animation: Animated ECG line that mimics recent heart patterns
- Step Counter Animation: Walking figure with particle effects
- Sleep Cycles: Animated waves representing sleep cycles
- Theme: Blues and reds (cardiovascular theme) with anatomical illustrations
- Icons: Anatomically-correct heart, lungs, muscles that animate on interaction

```
// Example 3D Heart Rate Animation
import { motion, useAnimation } from 'framer-motion';
import { useEffect, useState } from 'react';
import { Heart } from 'lucide-react';
export default function HeartRateVisual({ heartRate = 70 }) {
  const controls = useAnimation();
  const [isAnimating, setIsAnimating] = useState(true);
  // Calculate animation duration based on heart rate
  const duration = 60 / heartRate;
  useEffect(() => {
    if (isAnimating) {
      controls.start({
        scale: [1, 1.2, 1],
        transition: {
          duration.
          repeat: Infinity,
          repeatType: "loop"
        }-
      });
    } else {
      controls.stop();
    }-
  }, [isAnimating, heartRate, controls, duration]);
  return (
    <div className="relative flex items-center justify-center h-40 w-full">
      <div className="absolute inset-0 flex items-center justify-center">
        <svg viewBox="0 0 100 100" className="w-full h-full max-w-xs">
          <motion.path
            d="M10,50 L30,50 L40,30 L50,70 L60,30 L70,70 L80,50 L90,50"
            fill="transparent"
            stroke="red"
            strokeWidth="2"
            initial={{ pathLength: 0, opacity: 0 }}
            animate={{
              pathLength: 1,
              opacity: 1,
              transition: { duration: 1.5, repeat: Infinity, repeatType: "loop" }
            }}
          />
```

```
</div>
</div>
<motion.div
    animate={controls}
    className="relative z-10"

>
    <Heart size={64} color="red" fill="red" />
    </motion.div>

<div className="absolute bottom-2 right-2 text-2xl font-bold text-red-600">
    {heartRate} BPM
    </div>
    </div>
);
}
```

3. Mental Health Companion Page

External Integrations

- Spotify API: Integration for music therapy and mood playlists
- Calm/Headspace API: For guided meditation sessions
- Weather API: To correlate mood with weather patterns
- **Journal Entries**: Internal integration with journal module

Analysis Features

- Mood Pattern Recognition: Identifying triggers and cycles
- Emotional Language Analysis: NLP analysis of journal entries
- Sentiment Trend Visualization: Mood over time with life events correlation

Personalized Recommendations

- Custom Meditation Suggestions: Based on current mood and historical effectiveness
- **CBT Technique Prompts**: Cognitive behavioral therapy techniques
- Mood-boosting Activities: Personalized based on past effectiveness

- Breathing Animation Circle: Expands and contracts to guide breathing
- 3D Brain Visualization: With active regions based on mood/activities

- **Mood Color Transitions**: Background subtly transitions based on mood selection
- **Theme**: Calming blues and purples with neural network patterns
- **Icons**: Abstract emotional representations that morph based on selection

```
// Example Breathing Animation Component
import { motion } from 'framer-motion';
import { useState } from 'react';
export default function BreathingExercise() {
  const [isBreathing, setIsBreathing] = useState(false);
  const [breathCount, setBreathCount] = useState(0);
  const startBreathing = () => {
   setIsBreathing(true);
    setBreathCount(0);
  };
  const breathingComplete = () => {
    if (breathCount < 7) {</pre>
      setBreathCount(prev => prev + 1);
    } else {
      setIsBreathing(false);
     // Trigger completion callback or state change
   }-
  };
  return (
    <div className="flex flex-col items-center justify-center p-6 bg-blue-50 dark:bg-blue-900 r</pre>
      <h3 className="text-xl font-medium mb-4">Breathing Exercise</h3>
      <div className="relative h-64 w-64 flex items-center justify-center">
        <motion.div
          className="absolute h-40 w-40 bg-blue-400 dark:bg-blue-600 rounded-full opacity-20"
          animate={isBreathing ? {
            scale: [1, 2, 2, 1, 1],
            opacity: [0.2, 0.4, 0.4, 0.2, 0.2]
          } : { scale: 1, opacity: 0.2 }}
          transition={isBreathing ? {
            duration: 8,
            repeat: Infinity,
            repeatType: "loop",
            times: [0, 0.25, 0.5, 0.75, 1],
            onComplete: breathingComplete
          } : {}}
        />
        <motion.div
```

```
className="absolute h-32 w-32 bg-blue-500 dark:bg-blue-700 rounded-full opacity-40"
    animate={isBreathing ? {
     scale: [1, 1.7, 1.7, 1, 1],
     opacity: [0.4, 0.6, 0.6, 0.4, 0.4]
   } : { scale: 1, opacity: 0.4 }}
   transition={isBreathing ? {
     duration: 8,
     repeat: Infinity,
     repeatType: "loop",
     times: [0, 0.25, 0.5, 0.75, 1]
   } : {}}
 />
  <motion.div
   className="h-24 w-24 bg-blue-600 dark:bg-blue-800 rounded-full flex items-center just
   animate={isBreathing ? {
     scale: [1, 1.4, 1.4, 1, 1]
   } : { scale: 1 }}
   transition={isBreathing ? {
     duration: 8,
     repeat: Infinity,
     repeatType: "loop",
     times: [0, 0.25, 0.5, 0.75, 1]
   } : {}}
   {isBreathing ? (
     <div className="text-center">
       <div className="text-lg">{breathCount + 1}/8</div>
       <div className="text-sm">
          {breathCount % 2 === 0 ? "Inhale..." : "Exhale..."}
        </div>
     </div>
   ): (
     <button
       onClick={startBreathing}
       className="p-2 rounded-full"
       Start
     </button>
   )}
  </motion.div>
</div>
{isBreathing && (
```

4. Nutrition & Diet Page

External Integrations

- MyFitnessPal API: Food database and nutritional information
- Cronometer API: Detailed nutritional breakdown
- Grocery Delivery APIs: Instacart, Amazon Fresh for food ordering
- Recipe APIs: Edamam, Spoonacular for recipe suggestions
- Food Recognition API: Google Vision API for food image recognition

Analysis Features

- Macronutrient Balance Analysis: Optimal protein/carb/fat ratios
- Micronutrient Gap Detection: Identify missing vitamins/minerals
- Eating Pattern Recognition: Meal timing and frequency analysis
- Caloric Balance Visualization: Intake vs. expenditure

Personalized Recommendations

- **Meal Suggestions**: Based on nutritional gaps and preferences
- **Grocery Lists**: Generated from recommended meals and recipes
- Dietary Adjustments: Based on health goals and activity levels

- **3D Food Models**: Interactive 3D models of food items
- Nutrient Flow Animation: Animated visualization of nutrient absorption
- Plate Builder Animation: Interactive plate with drag-and-drop food items
- **Theme**: Vibrant food colors with organic patterns and textures
- Icons: Detailed food illustrations that animate when interacted with

```
// Example Macronutrient Distribution Chart
import { motion } from 'framer-motion';
import { Pie } from 'recharts';
import { PieChart, Cell, ResponsiveContainer, Legend, Tooltip } from 'recharts';
export default function MacronutrientChart({ data }) {
  // Data should be in format:
  // [{name: 'Protein', value: 30, color: '#FF5733'}, {name: 'Carbs', value: 50, color: '#33FF5
  return (
    <motion.div
      className="bg-white dark:bg-gray-800 rounded-xl p-4 shadow-sm"
      initial={{ opacity: 0, y: 20 }}
      animate={{ opacity: 1, y: 0 }}
      transition={{ duration: 0.5 }}
      <h3 className="text-lg font-medium mb-2">Today's Macronutrients</h3>
      <div className="h-64">
        <ResponsiveContainer width="100%" height="100%">
          <PieChart>
            <Pie
              data={data}
              cx="50%"
              cv="50%"
              innerRadius={60}
              outerRadius={80}
              paddingAngle={5}
              dataKey="value"
              animationDuration={1000}
              animationBegin={200}
              {data.map((entry, index) => (
                <Cell key={`cell-${index}`} fill={entry.color} />
              ))}
            </Pie>
            <Tooltip />
            <Legend verticalAlign="bottom" height={36} />
          </PieChart>
        </ResponsiveContainer>
      </div>
      <div className="mt-4 grid grid-cols-3 gap-2">
```

5. 🖀 Family & Social Life Page

External Integrations

- Google Calendar API: Event scheduling and coordination
- WhatsApp/Telegram API: Family chat integration
- Facebook/Instagram API: Social event detection
- Location APIs: Family member location sharing
- Shared Task Apps: Todoist/Trello API for family task management

Analysis Features

- Relationship Time Analysis: Quality time spent with different people
- **Social Network Visualization**: Interactive social connection graph
- **Event Participation Patterns**: Identifying social engagement trends
- Communication Frequency Analysis: Contact patterns with important people

Personalized Recommendations

- Social Connection Suggestions: Who to reach out to based on contact history
- Family Activity Ideas: Based on past enjoyment and current weather/availability
- **Relationship Nurturing Tips**: Personalized for each relationship

- Interactive Family Tree: 3D family/friend network visualization
- Communication Flow Animation: Animated lines showing message exchanges
- **Memory Timeline**: Scrollable timeline with family photos and events
- **Theme**: Warm, friendly colors with connection-themed patterns
- **Icons**: Family/relationship icons that pulse or animate on interaction

```
// Example Relationship Map Component
import { useState, useEffect } from 'react';
import { motion } from 'framer-motion';
import { User, Users, Heart, MessageCircle, Calendar } from 'lucide-react';
export default function RelationshipMap({ relationships }) {
  const [activeRelationship, setActiveRelationship] = useState(null);
  // Calculate positions in a circle for each relationship
  const getPosition = (index, total) => {
    const radius = 120:
    const angle = (index / total) * Math.PI * 2 - Math.PI / 2;
    return {
     x: radius * Math.cos(angle),
     y: radius * Math.sin(angle)
   };
  };
  return (
    <div className="relative h-96 w-full bg-gradient-to-br from-orange-50 to-amber-50 dark:from</pre>
      <h3 className="text-lg font-medium mb-6 text-center">Your Relationship Map</h3>
      {/* Center user */}
      <motion.div
        className="absolute left-1/2 top-1/2 -ml-10 -mt-10 h-20 w-20 rounded-full bg-blue-500 f
        initial={{ scale: 0 }}
        animate={{ scale: 1 }}
        transition={{ type: 'spring', duration: 0.8 }}
        <User size={32} />
        <div className="mt-1 text-xs">You</div>
      </motion.div>
      {/* Relationship circles */}
      {relationships.map((relation, index) => {
        const pos = getPosition(index, relationships.length);
        return (
          <motion.div
            key={relation.id}
            className={`absolute h-16 w-16 rounded-full flex items-center justify-center text-w
            style={{ backgroundColor: relation.color }}
            initial={{ scale: 0, x: 0, y: 0 }}
```

```
animate={{
        scale: 1,
       x: pos.x,
       y: pos.y,
       transition: { delay: 0.1 * index, type: 'spring' }
      }}
      onClick={() => setActiveRelationship(relation.id)}
     whileHover={{ scale: 1.1 }}
      {relation.type === 'family' ? (
       <Heart size={24} fill="white" />
      ) : relation.type === 'friend' ? (
       <Users size={24} />
      ) : (
       <User size={24} />
      ) }
      <div className="absolute -bottom-6 whitespace-nowrap text-xs font-medium text-gray-</pre>
       {relation.name}
      </div>
    </motion.div>
 );
})}
{/* Connection Lines */}
<svg className="absolute inset-0 w-full h-full pointer-events-none">
  {relationships.map((relation, index) => {
    const pos = getPosition(index, relationships.length);
   return (
      <motion.line
        key={`line-${relation.id}`}
       x1="50%"
       y1="50%"
       x2={(50\% + \{pos.x\}px)}
       y2={(50\% + \{pos.y\}px)}
        stroke={relation.color}
        strokeWidth={relation.strength * 2}
        strokeOpacity={0.5}
        strokeDasharray={relation.type === 'family' ? "0" : "5,5"}
        initial={{ pathLength: 0, opacity: 0 }}
        animate={{
         pathLength: 1,
         opacity: 0.6,
         transition: { delay: 0.1 * index, duration: 0.6 }
        }}
```

```
/>
        );
      })}
    </svg>
    {/* Details panel when relationship is selected */}
    {activeRelationship && (
      <motion.div
        className="absolute bottom-4 left-4 right-4 bg-white dark:bg-gray-800 rounded-lg p-3
        initial={{ y: 20, opacity: 0 }}
        animate={{ y: 0, opacity: 1 }}
        <h4 className="font-medium">
          {relationships.find(r => r.id === activeRelationship)?.name}
        <div className="flex justify-between mt-2">
          <div className="flex items-center text-sm">
            <Calendar size={16} className="mr-1" />
            <span>Last: 3 days ago</span>
          </div>
          <div className="flex items-center text-sm">
            <MessageCircle size={16} className="mr-1" />
            <span>14 messages</span>
          </div>
        </div>
      </motion.div>
    )}
  </div>
);
```

6. 🛞 Personal Goals & Planner Page

External Integrations

- Google Tasks/Todoist API: Task management integration
- Google Calendar API: Deadline and milestone tracking
- **Notion API**: Project management integration
- Habit Tracker APIs: Integration with habit-focused apps

Analysis Features

- Goal Completion Pattern Analysis: Identifying success factors
- Task Management Efficiency: Time allocation and productivity patterns
- Progress Visualization: Interactive goal journey mapping
- Habit Streak Analysis: Visualizing consistency and patterns

Personalized Recommendations

- Goal Refinement Suggestions: Based on progress patterns
- Task Prioritization Help: Al-powered importance/urgency matrix
- Productivity Optimization Tips: Based on past performance patterns
- Goal Achievement Strategies: Personalized roadmap suggestions

- 3D Goal Mountain: Interactive mountain visualization for goals
- Progress Path Animation: Animated path showing journey to goal
- Task Flow Visualization: Animated kanban or flow diagram
- **Theme**: Achievement-oriented colors with journey/map patterns
- Icons: Compass, map, trophy icons with progress-based animations

```
// Example Goal Mountain Visualization
import { motion } from 'framer-motion';
import { useState } from 'react';
export default function GoalMountainVisual({ goal, milestones = [] }) {
  const [activeIndex, setActiveIndex] = useState(null);
 // Calculate progress percentage
  const completedMilestones = milestones.filter(m => m.completed).length;
  const progressPercent = milestones.length > 0
    ? (completedMilestones / milestones.length) * 100
    : 0;
  // Create mountain path based on milestones
  const createMountainPath = () => {
   const baseWidth = 400;
    const baseHeight = 200;
   // Start at bottom Left
   let path = `MO,${baseHeight} `;
   // Create a point for each milestone
   milestones.forEach((milestone, i) => {
     const x = baseWidth * ((i + 1) / (milestones.length + 1));
     const height = baseHeight - (baseHeight * ((i + 1) / (milestones.length + 1)));
     path += `L${x},${height} `;
   });
   // End at summit
    path += `L${baseWidth},0 `;
   // Complete the shape
   path += `L${baseWidth},${baseHeight} L0,${baseHeight}`;
   return path;
 };
  return (
    <div className="relative bg-gradient-to-b from-blue-100 to-blue-50 dark:from-blue-900 dark:</pre>
     <h3 className="text-lg font-medium mb-2">{goal.title}</h3>
     Progress: {progressPercent.t
     <div className="relative h-64">
```

```
<svg viewBox="0 0 400 200" className="w-full h-full">
 {/* Mountain background */}
 <path
   d={createMountainPath()}
   fill="url(#mountainGradient)"
   stroke="#4b5563"
   strokeWidth="1"
 />
 {/* Mountain gradient */}
 <defs>
   < 1inearGradient id="mountainGradient" x1="0%" y1="0%" x2="0%" y2="100%">
     <stop offset="0%" stopColor="#60a5fa" stopOpacity="0.7" />
     <stop offset="100%" stopColor="#93c5fd" stopOpacity="0.3" />
   </linearGradient>
   </p
     <stop offset="0%" stopColor="#4ade80" />
     <stop offset="100%" stopColor="#22c55e" />
   </linearGradient>
 </defs>
 {/* Progress path */}
 <motion.path
   d={`M0,200 ${milestones.slice(0, completedMilestones).map((_, i) => {
     const x = 400 * ((i + 1) / (milestones.length + 1));
     const height = 200 - (200 * ((i + 1) / (milestones.length + 1)));
     return `L${x},${height}`;
   }).join(' ')} L${400 * ((completedMilestones + 1) / (milestones.length + 1))},${200}
   fill="url(#progressGradient)"
   initial={{ opacity: 0 }}
   animate={{ opacity: 0.6 }}
   transition={{ duration: 1 }}
 />
 {/* Milestone markers */}
 {milestones.map((milestone, i) => {
   const x = 400 * ((i + 1) / (milestones.length + 1));
   const y = 200 - (200 * ((i + 1) / (milestones.length + 1)));
   return (
     <g key={i} onClick={() => setActiveIndex(i)}>
       <motion.circle
         CX = \{X\}
```

```
cy=\{y\}
          r = \{10\}
          fill={milestone.completed ? "#22c55e" : "#94a3b8"}
          stroke="white"
          strokeWidth="2"
          initial={{ scale: 0 }}
          animate={{ scale: 1 }}
          transition={{ delay: i * 0.1, type: 'spring' }}
          whileHover={{ scale: 1.2 }}
          style={{ cursor: 'pointer' }}
        />
        {activeIndex === i && (
          <motion.text
           X = \{X\}
           y = {y - 20}
           textAnchor="middle"
           fill="currentColor"
            fontSize="12"
            initial={{ opacity: 0, y: 10 }}
            animate={{ opacity: 1, y: 0 }}
            {milestone.title}
          </motion.text>
        )}
      </g>
   );
 })}
 {/* Summit flag */}
  <motion.g
   transform="translate(400, 0)"
   initial={{ y: -20, opacity: 0 }}
   animate={{ y: 0, opacity: 1 }}
   transition={{ delay: 0.5, type: 'spring' }}
    <rect x="-2" y="0" width="4" height="20" fill="#f43f5e" />
    <polygon points="-2,0 8,5 -2,10" fill="#f43f5e" />
 </motion.g>
</svg>
{/* Current position climber */}
<motion.div
 className="absolute"
 style={{
```

7. Life Journal Page

External Integrations

- Dropbox/Google Drive API: Backup and sync for journal entries
- Notion API: For structured journal templates
- Calendar API: For timeline correlation
- Weather API: To include weather context with entries

Analysis Features

- Emotional Theme Detection: Al analysis of recurring themes
- Gratitude Pattern Recognition: Identifying positive patterns
- Writing Style Analysis: Personal linguistic patterns
- Memory Association Mapping: Connecting related entries and memories

Personalized Recommendations

- Journaling Prompt Suggestions: Based on emotional needs and past entries
- **Reflection Exercise Ideas**: Customized based on current life situations
- Memory Revisitation Suggestions: "On this day" and meaningful memory surfacing

- 3D Journal Book: Animated book with turning pages
- Ink Flow Animation: Writing that appears as if being handwritten

- Timeline Visualization: Interactive calendar with emotional color coding
- **Theme**: Paper textures, handwriting fonts, ink splatter accents
- **Icons**: Quill, book, calendar icons with subtle animations

```
tsx
// Example 3D Journal Book Component
import { motion, useMotionValue, useTransform } from 'framer-motion';
import { useState } from 'react';
export default function JournalBook({ entries = [] }) {
  const [currentPage, setCurrentPage] = useState(0);
  const [isOpen, setIsOpen] = useState(false);
  // For page turn effect
  const pageX = useMotionValue(0);
  const pageRotation = useTransform(pageX, [0, 100], [0, -180]);
  const openBook = () => {
   setIsOpen(true);
  };
  const turnPage = (direction) => {
    if (direction === 'next' && currentPage < entries.length - 1) {</pre>
      pageX.set(0);
      pageX.set(100);
      setTimeout(() => {
```