

AirPure Innovations - Product Requirements Document

Air Purifier Development Based on AQI Analytics

Document Version: 1.0

Date: August 2025

Prepared by: Peter Pandey (aka Adeel Ahmad Siddiqui), Data Analyst

Approved by: Tony Sharma, COO

Executive Summary

Based on comprehensive market research analyzing AQI data across India (2022-2025), AirPure Innovations will develop a tiered air purifier product line targeting India's ₹777.75 crore market, projected to reach ₹1200 crores by 2028 with a CAGR of 16%. Our research identifies clear demand triggers, health correlations, and feature gaps in the current market.

Market Context & Opportunity

Key Market Insights

- **Primary Target Pollutants:** PM2.5 and PM10 (most prominent in Indian cities)
 - **Priority Markets:** Tier 1/2 cities with persistent high AQI (Delhi NCR, Haryana, UP, Rajasthan)
 - **Peak Demand Periods:** November-January & February-May
 - **Health Impact:** 258 billion rupees annually spent on asthma treatment (0.75% of population affected)
 - **Behavioral Trigger:** Pollution emergencies increase purifier searches, but awareness remains low
-

Product Line Strategy

Three-Tier Approach

Tier 1: Essential Guard

Target Segment: Budget-conscious families in Tier 2/3 cities

Price Range: ₹8,000 - ₹12,000

Room Coverage: 200-300 sq ft

Must-Have Features:

- **PM2.5/PM10 Sensors** - Real-time monitoring with digital display
- **3-Stage Filtration:** Pre-filter + HEPA + Activated Carbon
- **Energy Efficient:** 5-star rating, <45W power consumption
- **Basic App Integration:** AQI monitoring via smartphone
- **Filter Life Indicator:** Visual alerts for replacement
- **Night Mode:** <35dB operation
- **Child Lock:** Safety feature for families

Nice-to-Have Features:

- **Auto Mode:** Adjusts speed based on air quality
 - **Timer Function:** 1-8 hour settings
 - **Filter Reset Button**
-

Tier 2: Smart Defender

Target Segment: Urban professionals and health-conscious families

Price Range: ₹15,000 - ₹25,000

Room Coverage: 300-500 sq ft

Must-Have Features:

- **Advanced Sensor Suite:** PM2.5, PM10, VOCs, formaldehyde detection
- **5-Stage Filtration:** Pre-filter + HEPA + Carbon + UV Sterilization + Ionizer (ozone-safe)
- **Smart App Control:** iOS/Android app with historical data
- **Voice Assistant Integration:** Alexa/Google compatibility
- **Real-time Air Quality Display:** Color-coded LED ring
- **Extended Filter Life:** 12-month HEPA, 6-month carbon
- **Auto Mode with Learning:** AI-based pattern recognition
- **Energy Efficient:** INVERTER technology, <60W

Nice-to-Have Features:

- **Gesture Control:** Wave-to-activate
 - **Weekly/Monthly Reports:** Air quality trends
 - **Multiple Timer Settings**
 - **Remote Monitoring:** Check home air quality from office
-

Tier 3: Premium Shield Pro

Target Segment: High-income households, offices, premium spaces

Price Range: ₹25,000 - ₹40,000

Room Coverage: 500-800 sq ft

Must-Have Features:

- **Professional-Grade Sensors:** PM2.5, PM10, VOCs, formaldehyde, CO2, humidity, temperature
- **7-Stage Purification:** Pre-filter + HEPA H13 + Carbon + UV-C + Photocatalytic + Ionizer + Antimicrobial coating
- **360° Air Intake:** Dual-fan system for maximum efficiency
- **Advanced Smart Features:**
 - AI-powered auto-adjustment
 - Weather integration (pollution forecasts)
 - Health advisory notifications
 - Maintenance scheduling
- **Premium App Experience:** Family health tracking, pediatric asthma alerts

- **Long-Life Filters:** 18-month HEPA, washable pre-filters
- **Ultra-Quiet:** <30dB in sleep mode
- **Medical-Grade Certification:** Validated by Asthma Council of India

Premium Features:

- **Virus/Bacteria Sterilization:** UV-C + plasma technology
- **Smart Home Integration:** Works with security systems, HVAC
- **Professional Installation:** White-glove setup service
- **Extended Warranty:** 5-year comprehensive coverage

Core Technology Requirements

Sensor Specifications

Parameter	Essential Guard	Smart Defender	Premium Shield Pro
PM2.5 Range	0-500 µg/m³	0-1000 µg/m³	0-2000 µg/m³
PM10 Range	0-500 µg/m³	0-1000 µg/m³	0-2000 µg/m³
VOC Detection	No	Yes	Yes (Advanced)
Formaldehyde	No	Yes	Yes
CO2 Monitoring	No	No	Yes
Accuracy	±15%	±10%	±5%

Filtration Performance

- **CADR Rating:** Minimum 200-400 m³/h (varies by tier)
- **HEPA Efficiency:** 99.97% for 0.3µm particles
- **Carbon Filter:** 500g+ activated carbon for VOC removal
- **UV-C Sterilization:** 99.9% pathogen elimination (Tiers 2&3)

Software & Connectivity

Mobile App Features (Priority Order)

1. **Real-time AQI Display** - Current indoor vs outdoor comparison
2. **Filter Life Tracking** - Countdown with replacement reminders
3. **Historical Data** - Daily/weekly/monthly air quality trends
4. **Health Insights** - Correlation with local disease outbreak data
5. **Maintenance Scheduling** - Automated service reminders
6. **Family Health Monitoring** - Pediatric asthma risk alerts
7. **Energy Consumption** - Cost tracking and efficiency tips
8. **Integration Hub** - Weather, pollen, and pollution forecasts

Voice Commands

- "Check air quality"

- "Turn on auto mode"
- "How's the filter life?"
- "Set timer for 4 hours"
- "Night mode on"

Pricing Strategy & Market Positioning

Competitive Analysis

Brand	Price Range	Key Differentiator	Market Gap
Dyson	₹25K-₹45K	Premium design	Lacks India-specific features
Honeywell	₹8K-₹20K	Reliability	Limited smart features
Kent	₹10K-₹25K	Local brand	Outdated technology
Blueair	₹15K-₹35K	Swedish engineering	High maintenance cost

Our Competitive Advantage

1. **India-Specific Calibration:** Optimized for local pollutants (PM2.5/PM10 focus)
2. **Health Integration:** Pediatric asthma monitoring based on local data
3. **Energy Efficiency:** Critical for Indian consumers (power costs)
4. **Long Filter Life:** Addresses maintenance concerns
5. **Ozone-Safe Technology:** No harmful ionizer emissions
6. **Local Service Network:** Widespread support infrastructure

Target Market Segmentation

Primary Markets (Launch Priority)

Tier 1 Cities with High AQI:

- Delhi NCR (Gurugram, Noida, Faridabad, Ghaziabad)
- Mumbai Metropolitan Region
- Pune
- Jaipur
- Ahmedabad

Rationale: Consistent high AQI (>100), high disposable income, pollution awareness

Secondary Markets (6-month expansion)

- Hyderabad
- Bengaluru
- Chennai
- Kolkata
- Patna
- Indore

Customer Personas

Persona 1: "Health-Conscious Parent" (Primary - Tier 2&3)

- Age: 28-45
- Income: ₹6-20 LPA
- Concern: Children's respiratory health
- Trigger: Pediatric asthma/respiratory infections
- Price Sensitivity: Medium
- Feature Priority: Health monitoring, child safety

Persona 2: "Tech-Savvy Professional" (Primary - Tier 2&3)

- Age: 25-40
- Income: ₹8-25 LPA
- Concern: Personal health, productivity
- Trigger: Work-from-home air quality
- Price Sensitivity: Low-Medium
- Feature Priority: Smart features, app integration

Persona 3: "Premium Lifestyle" (Primary - Tier 3)

- Age: 35-55
 - Income: ₹25+ LPA
 - Concern: Complete home environment
 - Trigger: Status symbol + health
 - Price Sensitivity: Low
 - Feature Priority: Premium design, comprehensive monitoring
-

Go-to-Market Strategy

Phase 1: Launch (Months 1-6)

- **Product:** Smart Defender (Tier 2) in Delhi NCR
- **Channel:** E-commerce (Amazon, Flipkart) + Direct-to-consumer
- **Marketing:** Digital campaigns during pollution peaks (Nov-Jan)

Phase 2: Expansion (Months 7-12)

- **Product:** Full 3-tier lineup
- **Channel:** Add retail partnerships (Croma, Reliance Digital)
- **Geography:** 8 major metros

Phase 3: Scale (Year 2)

- **Channel:** Tier 2 city expansion
- **Product:** Introduce commercial/office variants
- **Service:** National service network

Development Timeline

MVP Development (6 months)

- **Months 1-2:** Core hardware development, sensor integration
- **Months 3-4:** Software development, app beta testing
- **Months 5-6:** Regulatory approvals, pilot production

Market Launch Preparation (3 months)

- **Month 7:** Manufacturing scale-up, quality testing
 - **Month 8:** Marketing campaign development, channel partnerships
 - **Month 9:** Launch execution, initial sales
-

Success Metrics

Product KPIs

- **Market Penetration:** 5% market share in target cities (Year 1)
- **Customer Satisfaction:** >4.5/5 rating on e-commerce platforms
- **Repeat Purchase Rate:** >20% for filter replacements
- **App Engagement:** >60% monthly active users

Business Metrics

- **Revenue Target:** ₹50 crores in Year 1
 - **Unit Sales:** 25,000 units across all tiers
 - **Gross Margin:** >40% by Month 12
 - **Customer Acquisition Cost:** <₹2,000 per customer
-

Risk Assessment & Mitigation

High-Risk Factors

1. **Seasonal Demand Fluctuation:**
 - *Mitigation:* Develop marketing for non-peak seasons (health benefits, allergens)
2. **Component Supply Chain:**
 - *Mitigation:* Multiple supplier relationships, local sourcing where possible
3. **Regulatory Changes:**
 - *Mitigation:* Exceed current standards, maintain compliance buffer

Medium-Risk Factors

1. **Competitive Response:**
 - *Mitigation:* Patent key innovations, build brand loyalty through service
 2. **Economic Downturn Impact:**
 - *Mitigation:* Strong Essential tier positioning, financing options
-

Conclusion

The Indian air purifier market presents a compelling opportunity with clear demand drivers, identifiable target segments, and significant feature gaps in current offerings. Our three-tier strategy addresses diverse customer needs while leveraging India-specific insights from comprehensive AQI analytics.

Next Steps:

1. Finalize hardware specifications and supplier partnerships
2. Begin software development with focus on health-monitoring features
3. Secure regulatory approvals and certifications
4. Develop launch marketing strategy for pollution peak season