**Must-have features in Air purifier :  
  
What Existing Air Purifiers Lacks**

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| **Feature Area** | **Current Gap** |
| Sensor Accuracy & Trust | Unreliable auto AQI readings, poor PM sensor calibration |
| Gas/VOC Monitoring | Most models don’t detect chemical pollutants |
| Smart/Ecosystem Integration | Basic or locked app features, limited automation |
| Noise vs Performance | High CADR yields disruptive sound at full speed |
| Portability & Compact Design | Bulky form factors; require space for airflow clearance |
| Maintenance Flexibility | Proprietary filters, high replacement costs |
| Local Control without Connectivity | Over-reliance on apps/cloud for basic operation |

**1. Real-Time Accurate AQI Display**

* High-precision **PM2.5, PM10**, and **VOC sensors** (e.g., Sensirion, Plantower).
* Real-time AQI synced with **government/local stations** for validation.
* LED ring + numeric display (e.g., AQI: 153 - Unhealthy) for instant visibility.

**2. Smart App & Voice Control**

* Full app integration (Wi-Fi/Bluetooth) for:
* Remote on/off, fan control
* AQI history tracking
* Filter life status
* Support for **Alexa, Google Assistant**, Siri Shortcuts.

**3. Advanced Multi-Layer Filtration**

* **HEPA H13/H14** filter for allergens and fine dust
* **Activated carbon** for odor & VOC removal
* Optional **UV-C or PCO** module for microbes (if proven safe)
* Pre-filter (washable) for coarse particles (dust, hair)

**4. Compact, Modular Design**

* **Portable** or wall-mountable units
* 360° air intake design for small-to-mid rooms (200–500 sq ft)
* Swappable filter cartridges (tool-free)

**5. Ultra-Quiet Operation**

* ≤ 25 dB in sleep mode
* Dynamic fan speed adjustment (based on AQI, time of day, or motion)

**6. Energy-Efficient**

* ≤ 30W power draw at full speed
* Auto mode to throttle power intelligently
* Energy Star compliant (or equivalent)

**7. Transparent Filter Maintenance**

* Filter % remaining displayed clearly (via sensor or runtime tracking)
* Open, non-proprietary filters (no DRM/RFID lock-in)
* Alert notifications for cleaning/replacement

**8. Offline/Manual Mode Fallback**

* Works without internet/app
* Manual controls: fan speed, mode, AQI indicator

**9. Child Lock & Safety Features**

* Tip-over protection (if tower-style)
* Lock button to prevent accidental setting changes

**10. Location-Aware Adaptive Mode (Optional)**

* Auto-adjusts operation based on:
* Outdoor AQI (via GPS/linked APIs)
* Room occupancy (via motion sensor)
* Time of day (e.g., night mode)

**Tiered pricing models for target segments :**

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| --- | --- | --- | --- | --- |
| **Tier** | **Target Segment** | **Price Range (INR)** | **Key Features** | **Use Case** |
| Entry-Level | Budget-conscious users, students, Tier 2/3 cities | ₹5,000–₹8,000 | - HEPA H13 filter - Manual speed control - Compact design - No app connectivity | Small bedrooms, rental homes |
| Mid-Range Smart | Urban middle-class, small families | ₹9,000–₹15,000 | - HEPA H13 + carbon filter - Real-time AQI display - App connectivity (Wi-Fi) - Sleep mode, Auto mode | Urban apartments, kids’ rooms |
| Advanced Smart+ | Tech-savvy professionals, smart home users | ₹16,000–₹25,000 | - Smart AQI sync (outdoor) - Voice assistant support - VOC detection - Filter health monitoring - Multi room control | Premium homes, home offices |
| High-Capacity Pro | Large families, hospitals, offices | ₹26,000–₹40,000 | - HEPA H14 + UV or ionizer (optional) - High CADR (350+ m³/h) - Large area coverage (700+ sq. ft) - Wall/floor mount | Living rooms, clinics, shared spaces |
| Enterprise / Industrial | Offices, schools, co-working space0070033 | ₹45,000–₹1,00,000+ | - PM1/PM2.5/PM10 monitoring - IoT cloud dashboard - Modular filter cartridges - Occupancy sensors - Auto-scheduling | Workplaces, schools, hotels |