BLOOM – Advancing Spatial Computing
Sector: Spatial Computing

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The field of spatial computing is poised to revolutionise human-computer interaction by blending the physical and digital worlds. Traditionally, this space has been dominated by closed ecosystems controlled by major corporations like Microsoft, Apple, and Meta. These systems rely on expensive hardware, restrictive licenses, and high-cost components, creating significant barriers for innovation, customisation, and accessibility.

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One of the primary challenges in advancing spatial computing in India lies in developing lightweight, low-power, and affordable AR headsets with real-time spatial tracking. Existing systems are often bulky, expensive, and heavily dependent on foreign ecosystems, raising both economic and national security concerns.

Moreover, there has been limited access to adaptable hardware for researchers and developers working on motion tracking and immersive experiences. B100M Computer (pronounced Bloom), a deep-tech startup, is addressing these challenges with its flagship product, the Bloom Mobile Device. This is a transparent, energy-efficient AR headset designed with flexibility and scalability in mind. It is planned to be powered by a RISC-V Compute Module Host System Board, the first of its kind in India.

The Bloom Mobile Prototype device supports advanced spatial tracking capabilities including head, hand (3-DoF and 6-DoF), and position tracking using integrated stereo cameras, all while maintaining a lightweight design with power-efficient architecture. The long term vision is RISC-V silicon powering the full B26 OS ecosystem. The headset operates on B26 OS, a standalone operating system developed in-house for spatial computing applications.

This innovation eliminates reliance on licensed systems, giving developers complete freedom over their applications and interaction logic. The optics system, based on Birdbath Glasses and OLED panels, delivers sharp visuals while keeping costs manageable through the use of materials like PA12 and SLA.

Bloom's commitment to fundamental R&D and IP heavy hardware/software development has led to a modular AR platform with the potential to incorporate future technologies such as eye tracking. By lowering manufacturing costs, simplifying hardware, and building from first principles, Bloom is laying the groundwork for a new era of independent spatial computing in India.

Their efforts are protected by patents in progress, positioning them as leaders in India's spatial tech innovation landscape. With a focus on accessibility, efficiency, and customization for enterprise, Bloom is not just responding to the global AR challenge, it is reshaping the future of spatial computing, making high-performance AR devices accessible to a broader audience, and championing India's place in the immersive technology revolution.

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