[Draft] Star AI App — Designer Specification (v1.0)

Last updated: *Sep 25, 2025*

1) Product Overview

Goal: Help people easily discover, understand, and plan for upcoming celestial events through a friendly AI assistant, AR explanations, and a personalized astronomical calendar.

Primary value props

- Personalized notifications about the **next cosmic events** (based on location & visibility conditions)
- **Astronomical calendar** highlighting notable events (e.g., Blood Moon, meteor showers, conjunctions)
- **Moon cycles** module (phases, rise/set times) with an integrated calendar view
- **AI assistant** that explains astronomy in simple terms
- Personalization by **user location**
- **Space quizzes** dynamically generated from user questions
- **AI chat over AR**: when the user points the camera at a sky object(and clicks on it), chat explains context (object + time + observing conditions) and offers actions (e.g., reminders)

Target platforms: iOS (iPhone), Android (common modern devices). **dark theme** support only.

Target audience: Curious beginners → enthusiasts. Accessibility friendly, concise language, visually calming.

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2) Brand & Visual Direction

Keywords: calm, cosmic, precise, welcoming, trustworthy.

Color (design tokens):

TODO align on color palette. Application should be in dark/space tones.

> Designer: create a tokenized palette with contrast AA+ for body text and AA for UI elements. Provide a neutral scale (50–900) and elevation overlays for dark.

Typography

- iOS: SF Pro Text / Display
- Android: Roboto Flex
- Headline: Bold, friendly (e.g., H1 28–32pt), Body: 15–17pt, Caption: 12–13pt

Iconography

- Line + duotone set: astronomy (planet, comet, moon, telescope, star visibility), system (location, calendar, notify, AR, AI/chat). Provide filled and outline icons.

Illustration

- Minimal, geometric night-sky vibes. Optional gradient nebulae, starfields that never distract. Keep motion subtle.

Motion & Micro-interactions

- Easing: standard out/in. Duration 150–300ms.
- AR transitions: fade-in HUD, scale-up object pins.
- Haptics: light impact on major toggles; success on saved to calendar; soft warning when conditions are poor.

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3) Information Architecture

Primary Nav (Tab Bar, 4–5 items):

1. **Assistant** (chat)
2. **Calendar** (global astronomical calendar + filters)
3. **Moon** (phases + calendar + today's times)
4. **AR** (scan sky + AI overlay)
5. **Feed** (Personalized "Sky Feed": next events near me)

Secondary: Notifications, Settings, Profile.

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4) Core User Flows & Screens

4.1 Onboarding & Permissions

- Screens: Welcome → Location permission → Notification opt-in → Interests (e.g., Moon, Meteor Showers, Planets) → AI assistant configuration → Paywall with free plan → Done
- Copy: simple, friendly; explain value of location (personalized visibility)
- Edge cases: no permission → fallback to manual city; education banners to enable later

4.2 Feed (Sky Feed)

- Components: Next Big Event card; Upcoming list (for the next 30 days); Quick filters (Tonight, This Week, Planets, Moon, Meteors)
- Visibility meter chip (Clear/OK/Poor) based on forecast + light pollution (abstracted)
- CTA chips: "Add to Calendar", "Remind me", "See best time"
- Empty state: "No major events soon — I'll still ping you when something special appears."
- Space Quiz tile

4.3 Event Detail

- Hero: object type illustration/photo (optional), title, date/time window, best viewing time
- Info blocks: What it is (simple), Why it's special, Visibility in my location (grade), Requirements (dark sky, binoculars), Next occurrence
- Actions: **Notify me**, **Share**
- AI hint: "Ask why this blood moon happens."
    - When clicking hint, you should move to AI chat

4.4 Calendar (Astronomical)

- Month grid + event dots; filters: Planets, Moon, Meteors, Eclipses, Conjunctions, ISS passes
- Tap → bottom sheet with summary + actions

4.5 Moon Module

- Today card: phase graphic, illumination %, rise/set times, distance (optional)
- Calendar: month phases
- Explore: supermoons list, "best photo nights"

4.6 Assistant (Chat)

- UI: message list, suggestion chips (e.g., "What's visible tonight?", "When Jupiter is the most visible?", "What is the closest star to the Sun?")
- Input affordances: text input, photo attach (future)
- Responses: short, readable, with footnote links to details screens. Can propose to setup reminders, open AR screen
- Safety copy for uncertain data; avoid jargon

4.7 AR + AI Overlay (AI chat over AR)

- HUD elements:
    - Center reticle / object highlighting ring
    - Object label pill (name + magnitude est.)
    - Context panel (collapsible):
        - **“This is Jupiter. It’s in opposition right now, so it’s especially bright. Do you want a reminder for the next time it will be visible?”**
        - Chips: **Reminder**, **Add to calendar**, **Show best time**
        - Meta: best viewing window, visibility score, next window
    - Show arrow if the object is behind the screen
- Interaction model:
    - User pans phone → object pins snap/hover; tap to “lock”
    - When locked, **chat panel** slides up with object-aware message; follow-ups use context (object + time + observing conditions)
    - All panel messages will be duplicated in the AI chat screen
    - Quick action to toggle “Auto-identify objects”
- States: weak GPS/compass → display calibration helper; city-level fallback names; indoor demo mode

4.8 Space Quizzes

- Entry: from Assistant or Feed screen
- Flow: pick topic (Moon/Planets/Meteors) or “From my last question” → 5–7 question rounds
- Question types: multiple choice, image identify (non-mandatory), true/false
- Feedback: instant with fun fact; progression meter; shareable score card

4.9 Notifications Center

- Types: upcoming events, “tonight highlights”, moon milestones, weather/visibility changes, quiz streaks

- Controls: frequency sliders (low/med/high), topics, quiet hours, location-change prompts

4.10 AI Assistant Configuration

1. Expertise level configuration

Show three chips at the top. Selecting a preset updates the controls below.

- **Simple** — very short answers
- **Balanced** (default) — short + a bit of context
- **Detailed** — longer, educational answers

2. Show a question and answer example(like in AI chat) in the card.

   Like, “Q: Why do we have tides?”, and when user selects each chip, the answer will be updated based on the selection.

4.11 Paywall with free plan (subscription)

Goal: Provide a simple, clear upgrade screen without overwhelming detail.

Premium Features:

- Full astronomical calendar (all events + local conditions)
- Extra personalized notifications
- Unlimited AI assistant questions
- AR detailed explanations
- Extended quizzes with stats
- Full calendar export

Screen Layout:

- Hero image (cosmic illustration)
- Title: “Unlock the full universe”
- Short subtitle about benefits
- 3–4 bullet points with icons
- Pricing plans: Monthly & Annual (highlight savings)
- Main CTA: “Start Free Trial”

- Secondary: “Continue Free”

Design Notes:

- Keep copy short and motivating
- Use brand colors and icons
- Localize pricing & text

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5) Components & Design System

- **Event Card** (sizes: compact, regular, hero)
    - Title, date/time; tag chips (e.g., Meteor Shower, Blood Moon); visibility chip; CTA buttons
- **Chips**: filter, CTA, state (success/warn/neutral)
- **Visibility Meter**: icon + label (Great/OK/Poor) + tooltip (“Based on forecast & light pollution”)
- **AR Object Pin**: dot + halo + label; focused state with connector line
- **Chat Bubbles**: assistant (cosmic gradient subtle), user (neutral); code for inline math (rare)
- **Calendars**: month grid + event dots; lunar phase stickers
- **Bottom Sheets**: event summary, action sheets
- **Empty States**: friendly illustrations + “Notify me next time” CTA
- **Skeleton Loading**: shimmer variants for cards and lists

Deliver Figma auto-layout components with variants (hover/pressed/disabled), iOS & Android spacing (8pt base grid), and tokens.

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6) Data & States

Location

- Granted: show city and use precise times
- Denied: prompt banner + manual city picker
- Moving users: “We noticed you’re in a new area — update visibility?”
- There should be a separate screen for updating location

Connectivity

- Offline: cached next events + moon phase; banner “Some data may be outdated”
- Low accuracy: request compass calibration UI

Timezones

- Always display local times; event detail includes UTC toggle

Edge cases

- Cloudy/poor conditions: offer alternatives (“Live stream link”, “Try again tomorrow at 4:50”)

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7) Copy & Tone (Examples)

- Friendly, simple, no jargon. Use short sentences.
- Examples:
    - “Tonight near you: Jupiter shines brightest. Best at 22:40–23:20.”
    - “Blood Moon: Earth’s shadow turns the Moon red.”
    - AR chat: **This is Jupiter. It’s in opposition right now, so it’s especially bright. Do you want a reminder for the next time it will be visible?”**
    - Quiz correct: “Right on! When in opposition, a planet is opposite the Sun in our sky.”

Localization: Keep strings concise; avoid culture-specific idioms.

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8) Accessibility

- Text contrast AA (body), Large AA for headings
- Scalable type; support OS text size
- Tap targets ≥ 44×44pt

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9) Integration Touchpoints

- **Calendars**: Recurring reminders; default alerts
- **Notifications**: rich push with image (event illustration), action buttons (“Snooze”, “Add to calendar”)
- **Location**: native permission flows + fallback picker

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11) Deliverables Checklist (Designer)

- ✅ Brand moodboard, color & type tokens
- ✅ Icon set (outlined + filled, 24/32)
- ✅ Illustration kit (events, moon phases, empty states)
- ✅ Complete Figma design system (buttons, chips, cards, calendars, chat, AR HUD)
- ✅ High-fidelity flows for:
    - Onboarding & permissions
    - Home (Sky Feed) & Event detail

    - Calendar & Moon modules
    - Assistant chat (with examples)
    - AR overlay with contextual chat
    - Notifications center & push templates
    - Calendar export
    - Space quiz flow
- ✅ Prototypes: AR overlay micro-interactions; chat reveal; add-to-calendar
- ✅ Spec annotations: spacing, tokens, states, accessibility, motion
- ✅ Export guidelines: App icons, App Store screenshots (5–7), feature graphics

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12) App Store Assets (Brief)

- App Icon: minimalist planet/halo; dark variant only
- Screenshots: “Ask anything about space”, “Personalized sky feed”, “AR object explainers”, “Astronomical calendar”, “Test your knowledge through quiz”
    - Prepare screenshots in all supported languages(Use AI translation).
- Feature graphics
- Screenshots should be adapted both for Android and iOS formats
- Short video (15–20s): scan sky → AI explains → add reminder → quiz result

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13) Measurement & Quality

- Define baseline tap areas, alignment grids, and minimum spacing

- Include redlines for key components (Event Card, AR HUD, Calendar cells)
- Provide example Lottie (optional) for subtle stars twinkle, not distracting

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14) Notes for Engineering Handoff

- Provide component names consistent with design tokens (e.g., `color.primary.500`)
- Export vector assets as SVG; avoid raster except photos
- Provide AR HUD specs: min/max label widths, truncation rules, multi-line support, safe area for camera
- Variable fonts preferred; include optical sizing recommendations

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15) Sample Notification Templates

1. **Tonight Highlight**
    - Title: “Jupiter at its brightest tonight”
    - Body: “Best view 22:40–23:20 in your area. Add to calendar?”
    - Actions: Add, Snooze
2. **Blood Moon**
    - Title: “Кровавая Луна сегодня”
    - Body: “Лучшее время 04:12–05:03. Хочешь напоминание?”
3. **Moon Phase**
    - Title: “First Quarter Moon”
    - Body: “Perfect for crater shadows around 20:15.”

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16) QA States to Design

- No location; No network; Cloudy all week; No major events this month; AR calibration needed; Compass interference; Timezone changed; Calendar permission denied

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17) Supported locales

17.1 Primary countries

- Australia
- Canada
- France
- Germany
- United Kingdom
- United States
- Spain
- Italian
- Netherlands
- Japan
- Korea

17.2 Supported languages

1. English (US & UK)
2. German
3. French
4. Spanish (Spain)
5. Italian
6. Dutch
7. Japanese
8. Korean