



AUTOMATED URBAN RESTAURANT ASSISTANT

GROUP 17





WHAT PROBLEMS AURA SOLVED?

THE PROBLEM : THE "WAITING GAME"



**A Busy Night You
And Family
Walk Into Popular Cafe**



THE INITIAL WAIT :



**10+ Minutes Just To Get A Menu.
You Wave Your Hand !
But They Are Too Busy**



THE "SECOND DRINK" BARRIER:



Want To Re-order?

- **Good Luck Finding A Waiter.**
- **You Don't Want Shout**
- **Bad Experience**



THE "HOSTAGE" SITUATION:

Ready To Leave !

**But Stuck Waiting For The Bill
And Bring Back The Change**



**THIS ENTIRE PROCESS IS FULL OF
UNNECESSARY DELAYS.**





THE NEXT PROBLEM : UNCERTAINTY & DISCOMFORT



- **Blind Ordering: Fancy Names, No Photos On The Menu**
- **The Disappointment: Ordering Based On Text Vs Receiving Reality.**

- **The Intrusion: Waiters Hovering Or Interrupting Conversations.**
- **Lack Of Privacy: Feeling Pressured To Order Quickly.**





INTRODUCING - AURA

THE SOLUTION

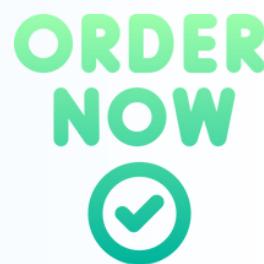




- **Visual Menu: See Exactly What You Eat (No More Surprises).**



- **On-demand: Order & Re-order Instantly Without Waiting.**



- **Seamless: Pay Via QR And Leave Anytime.**



- **Non-intrusive: Service Only When You Need It.**





CORE FUNCTIONALITY (ORDERING & EFFICIENCY)

- **Autonomous Ordering:** Customize Orders (Sugar, Ice, Toppings) Via Touch.
- **Real-time Kitchen Integration:** Orders Sent Directly To The Cook (No Handwritten Notes).
- **Multi-language Support:** English, Sinhala (සිංහල), Tamil (தமிழ்).
- **Universal Design:** Icon-based Navigation & Number Codes (1=coffee).





THE "AURA" EXPERIENCE (EMOTIONAL AI & LOYALTY)



- **Entertainment Module:** Games (Like Tic-tac-toe) & Music While Waiting.





THE "AURA" EXPERIENCE



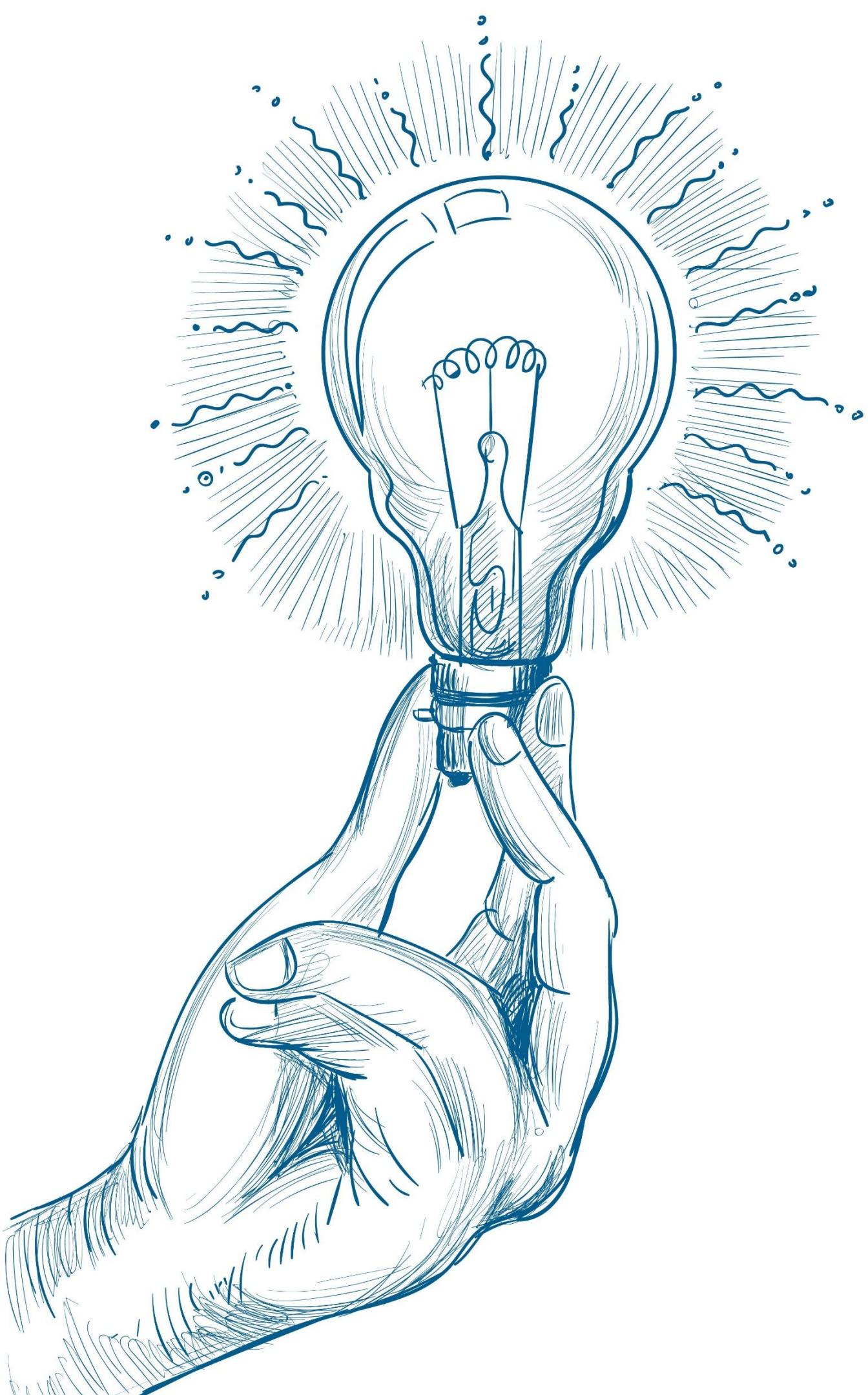
- **Feedback Loop: Instant Ratings Linked To The User Profile.**



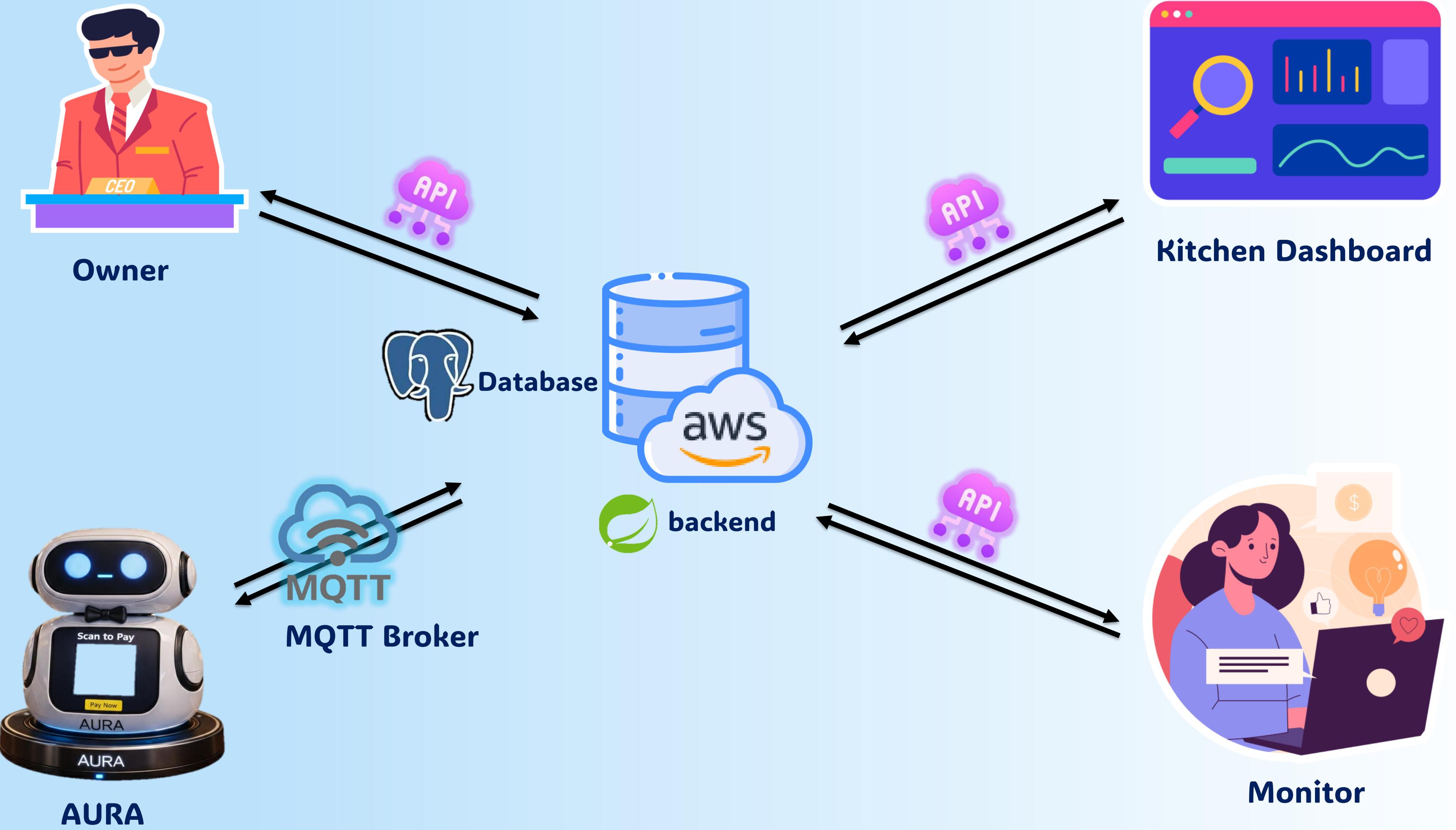
THE "AURA" EXPERIENCE



- **Automated Celebrations:** Pre-book A Birthday Table Automatically Plays "Happy Birthday" Song And Flashes Lights Upon Arrival.

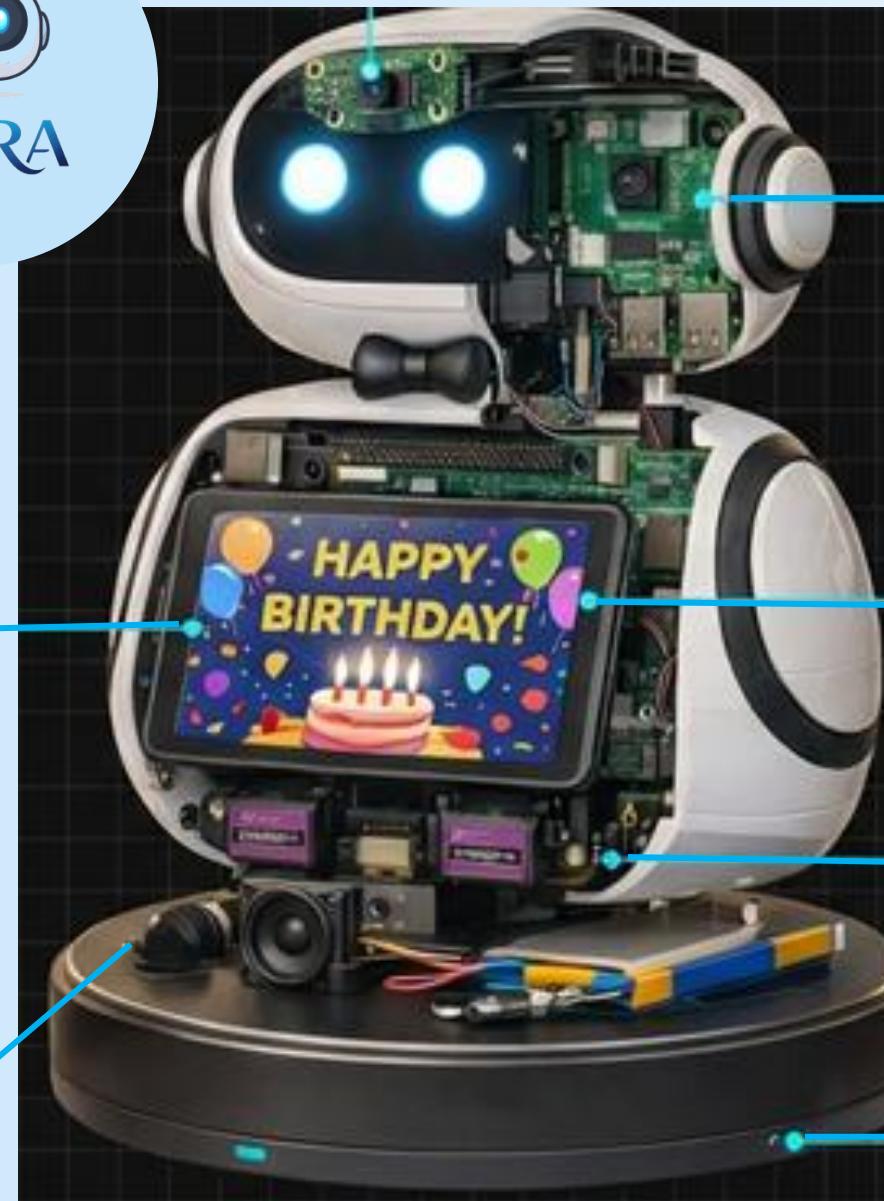


SOLUTION ARCHITECTURE



AURA BOT MAIN COMPONENTS

Raspberry Pi 4B (4GB)



Raspberry Pi Camera Module (V2)



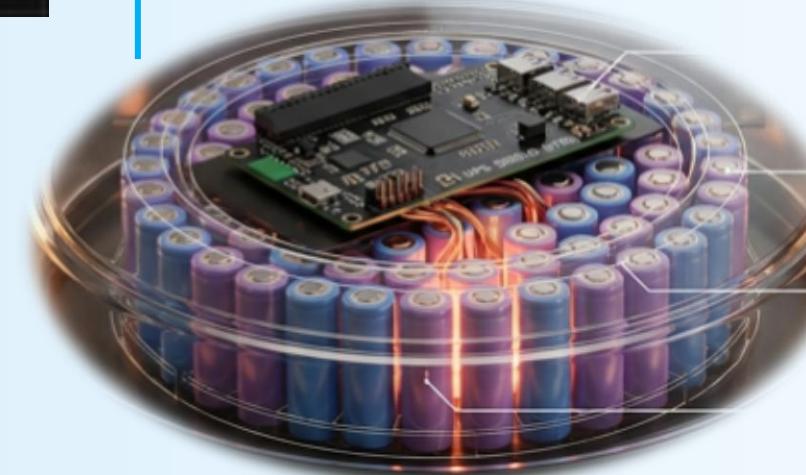
7-inch IPS Touch Display



2W Speaker (MIT M38)



Servo Motors (MG90S)

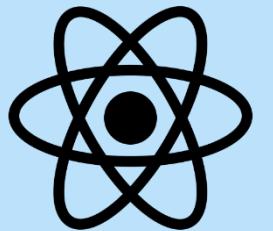


Lithium-ion Battery (10,000mAh)
+UPS Shield X703

TECH STACK



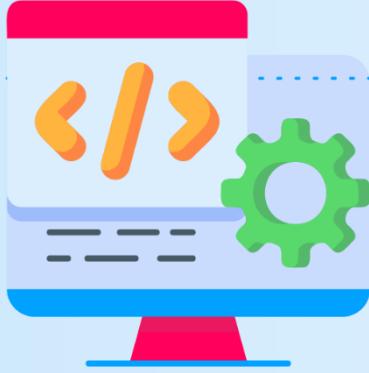
FRONTEND



ReactJS



For web app & dashboard



BACKEND



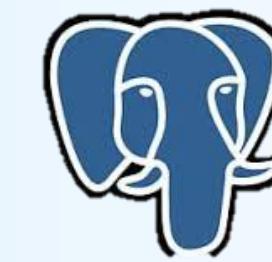
Java Spring Boot



RESTful API Architecture



DATABASE



PostgreSQL



Security & Privacy

Privacy-First Design

- No storage of images or videos from customers
- Only essential order and feedback data is retained

Network Security

- Isolated Café Wi-Fi Network
- HTTPS Encrypted communication for payment gateway
- Jason Web Token for Authentication



BUDGET OVERVIEW



#	Item	Quantity	Unit Price (LKR)	Total (LKR)
1	Raspberry Pi 4B (4GB)	1	28,000	28,000
2	7-inch IPS Touch Display	1	15,000	15,000
3	Raspberry Pi Camera Module (V2)	1	6,000	6,000
4	Pan/Tilt Servo Mechanism	1	1,500	1,500
5	Servo Motors (MG90S)	2	1,500	3,000
6	2W Speaker (MIT M38)	1	1,200	1,200
7	Lithium-ion Battery (10,000mAh)	1	5,000	5,000
8	18650 UPS Shield X703	1	6,500	6,500
9	0.9" TFT Display	2	890	1,780
10	MPR121 Capacitive Touch Controller	1	540	540
Grand Total				68,520

TIMELINE

ECONOMIC VIABILITY



- One-time cost
- Reduces need for extra service staff
- Cost-effective in long term

THANK YOU !

Team :-

- E/21/024 - AMARANGA S.G.I
- E/21/113 - DISSANAYAKE H.G.K.V.D.C
- E/21/245 - MADHUSHAN
- E/21/407 - THENNAKOON T.M.I.I.C.

