

Brix Lens

Computer-Vision Operations Analytics for Quick-Service Kitchens

CIS 4010 Senior Design - Business Plan Deliverable

Team 64 - University of Pennsylvania - May 2026

Team Members

Diego Narvaez (CIS & Math '26) - Juan Carlos Giron (CIS '26) - Lukas Sjoborg (AI '26)

Shrey Kakkar (CIS & Wharton '26) - Aryaman Meswani (M&T '26)

Faculty Advisor: Prof. Swapneel Sheth

Teaching Assistant: Shreya Lanjewar

Executive Summary

Brix Lens is a computer-vision operations analytics platform that turns existing kitchen camera footage into task-level performance metrics for quick-service restaurants (QSRs). Conversations with restaurant operators - including a Wendy's franchise owner in Michigan - confirmed that the only quantitative employee metric most operators have today is clock-in and clock-out time; cooking speed, order turnaround, idle time, and station-level productivity are otherwise judged by manager intuition, leaving labor optimization and standardization on the table.

Over the 2025-2026 academic year, our team built and deployed an end-to-end MVP. The shipped system uses YOLOv8 patty detection, an IOU tracker, and a state machine to classify each item's lifecycle (waiting, cooking, removed). Frame- and patty-level events flow through a CSV/JSON aggregation layer into a Supabase Postgres backend - the data permanence layer is live and powering the dashboards. A React frontend exposes throughput, cooking efficiency, cook and wait times, heat-map coverage, and multi-video aggregation with period-over-period comparisons.

The MVP was validated against self-recorded home-kitchen footage; commercial validation was constrained during the academic year by legal and corporate access barriers and is the first item on our post-graduation roadmap. Brix Lens targets multi-unit independents and emerging chains (5-50 locations), a segment underserved by enterprise CV vendors. At ~\$150 per location per month against ~\$50 in variable cost, the platform supports a ~67% gross margin and breaks even at ~213 active locations. The plan ahead is paid pilots with regional burger and lower-end fast-food operators, followed by a small angel/seed raise once anchor accounts validate retention and ROI.

1. Need & Value Proposition

The Need

Quick-service kitchens are operationally opaque. The largest controllable cost - labor, at roughly 25-30% of sales - is managed against essentially zero objective per-task data. Operators we spoke with described relying on punch-clock data and manager intuition to make decisions about staffing, training, and service speed. Two structural gaps follow from this.

- No closed feedback loop on operations. Operators see what was sold (POS) and who was on shift (scheduling), but not what actually happened on the line - how long each item cooked, where the station bottlenecked, which staff combinations performed best.
- Tooling that exists is built for the top 100 chains. Enterprise CV vendors (Agot, PreciTaste) sell into Wendy's and Chipotle. The roughly 50,000 U.S. multi-unit independent and emerging-chain locations have effectively no purpose-built option that fits their budget and procurement cycle.

The Value Proposition

Brix Lens converts raw kitchen video into actionable, task-level performance metrics. The product is built around five concrete promises that map directly to features we have shipped:

- **Operational visibility.** Cook times, wait times, idle time, and per-station throughput are surfaced live and historically through the dashboard, replacing intuition with measured numbers.
- **Labor cost optimization.** Identifying idle stations and uneven workload distribution lets operators tighten schedules and reduce overtime against the largest controllable cost line.
- **Throughput improvement.** Even one to two seconds of average reduction per item compounds across thousands of daily transactions and shows up directly in service speed during peak periods.
- **Cross-location standardization.** Multi-video aggregation lets a multi-unit operator compare shifts and stores against the same metric definitions, giving them a substrate for training and coaching.
- **No hardware refresh.** Brix Lens runs on existing CCTV or a low-cost mobile camera. Customers do not need to replace cameras, install sensors, or modify their POS.

2. Stakeholders

Brix Lens sits between several stakeholder groups whose interests overlap but do not perfectly align. Successful adoption depends on addressing each one explicitly.

Stakeholder	Role / Interest	Benefits & Concerns
Restaurant Owners & Managers	Core users; rely on Brix Lens dashboards for staff scheduling, training, and operational decisions.	Gain objective visibility into bottlenecks, labor inefficiencies, and throughput. Concerned about data accuracy, employee acceptance, and integration overhead.
Kitchen Staff / Line Employees	Subjects of the analytics; their cook and prep times feed the dashboards.	Can receive fairer feedback and recognition for efficiency, but may feel surveilled. Mitigated by anonymization, transparency, and framing as enablement rather than monitoring.
Multi-Unit Operators & Emerging Chains	Primary commercial customer: 5-50 location operators seeking standardization across sites.	Benefit from cross-location benchmarking and uniform training standards. Concerned about rollout complexity and consistency of data quality across stores.
Independent QSR Owners	Single-location and small operators with limited tech budgets.	Low-cost entry point through existing CCTV; risk of limited internal capacity to act on insights without managed-service support.
Franchise Brand Headquarters	Set technology and operational standards their franchisees may opt into.	Want consistency and brand-level visibility. May restrict franchisee tech-vendor choices unless Brix Lens is brand-approved or integrated with required systems.
Investors (Post-Graduation)	Potential angel and seed investors evaluating the company after senior design wraps.	Attracted by recurring revenue and TAM, but require demonstrated commercial validation, retention metrics, and a defensible IP or data moat.
Regulators & Privacy Advocates	State labor regulators (CT, DE, NY require employee monitoring notice), biometric privacy regimes (IL BIPA, TX, WA), and FTC.	Will scrutinize consent, retention, and any inadvertent biometric processing. Compliance navigation is non-trivial and a real cost driver early on.

The two stakeholder relationships we expect to consume the most non-engineering effort post-graduation are kitchen staff (acceptance, framing, transparency) and regulators (state-by-state employee monitoring law). Both are addressed in the Risks and Regulatory section.

3. Market Opportunity

Three structural shifts make this a defensible moment to build Brix Lens, independent of any single customer's buying cycle.

- **Camera ubiquity.** Nearly all multi-unit QSRs already operate CCTV for loss prevention. The marginal cost of running an additional analytics workload over that footage is close to zero on the hardware side - the bottleneck has been software.
- **CV cost collapse.** Open-source detection models (YOLO family) have moved real-time object tracking from enterprise-grade compute to commodity GPUs. A workload that required a custom integrator three years ago now runs on a \$0.50/hour cloud instance.
- **Persistent labor pressure.** Post-pandemic wage inflation in the QSR labor pool has not reversed. Even modest improvements in labor allocation translate into material P&L impact, which raises every operator's willingness to pay for visibility.

The market opportunity is not "replace the POS." It is to claim the back-of-house operational analytics layer - a category that exists at the enterprise tier (where Agot and PreciTaste sell) but not at the segment Brix Lens targets.

4. Customer Segments

Brix Lens has a clear primary segment, two adjacent secondary segments, and a deliberate non-segment for the foreseeable future.

Primary: Multi-Unit Independents and Emerging Chains (5-50 locations)

These are operators who have outgrown a single-store mindset but have not been absorbed by enterprise procurement processes. They have real labor pressure, real interest in standardization across stores, and the authority to sign a \$150-\$300/month subscription per location without a six-month vendor approval cycle. They do not have an internal data team. They do have CCTV. This is the segment where Brix Lens is differentiated, where the sales motion is realistic for a small founding team, and where retention is most defensible because the product directly answers a question they cannot answer today.

Secondary: Cloud and Ghost Kitchens

Delivery-only operators (CloudKitchens tenants, Reef, regional virtual brands) have thin margins, dense camera coverage, and a strong cultural bias toward measurement. They are a strong product fit and a

useful design partner segment, but the absolute number of locations is smaller and procurement runs through landlord operators rather than the brand itself.

Secondary: Lower-End Fast-Food Operators (Regional Burger, Family Brands, Independent Drive-Ins)

Regional burger chains, family-owned fast-food brands, and independent drive-ins are an explicit post-graduation expansion target. These operators sit between the primary segment and large enterprise chains: they often have 20-100 locations, manageable franchise structures, and existing CCTV from loss-prevention deployments. Outreach to these operators is part of the Year 1 commercialization plan and described in the post-graduation roadmap.

Deliberate Non-Segment (For Now): Top-100 Enterprise QSR Chains

Wendy's, Chipotle, and similar enterprise chains are attractive logos but the wrong first customers for a small team. Procurement cycles run 12-18 months, RFP processes require integrations Brix Lens does not have on day one, and the buying committees are large. Brix Lens will revisit this segment after pilot validation and a small post-graduation raise.

5. Market Sizing

Sizing is built bottom-up from public data on U.S. limited-service restaurants and segment-typical software ARPU. The TAM/SAM/SOM frame is summarized below; assumptions are listed inline so they can be adjusted as commercial data lands.

Layer	Definition	Size	Methodology
TAM	Global restaurant operations technology spend (back-of-house analytics, labor optimization, kitchen video).	~\$24B (2025)	Per IBISWorld and Mordor Intelligence sizing of restaurant management software, video analytics, and labor management categories combined.
SAM	U.S. limited-service restaurant locations operated by multi-unit independents and emerging chains (5-100 locations).	~50,000 locations / ~\$1.1B annual	~250K U.S. limited-service locations (NRA 2024); ~20% fall in the 5-100 multi-unit independent / emerging-chain segment. At a target ARPU of ~\$1,800/location/year, the segment supports ~\$1.1B in annual subscription revenue.

Layer	Definition	Size	Methodology
SOM (5-yr)	Realistically reachable share through warm-introduction sales, paid pilots, and a small post-graduation team.	~2,500 locations / ~\$4.5M ARR	~5% penetration of SAM by Year 5, working from 3-5 anchor pilots into franchise networks. Conservative given a 4-6 person founding team and bottom-up sales motion.

Growth Drivers

- U.S. restaurant operations technology spend is growing at high single digits annually (per Mordor Intelligence), with CV-specific subcategories growing meaningfully faster than the broader category.
- Multi-unit independents are the fastest-growing operator class by location count, as private equity continues to roll up regional franchisees into mid-sized portfolios that need standardization tooling.
- Continued labor cost pressure (state-by-state minimum wage increases, particularly in CA and NY) increases the value of every percentage-point improvement in labor efficiency, raising willingness to pay.

6. Competition, Differentiation & Innovation

The competitive landscape splits into three groups: dedicated kitchen CV vendors (the closest competitors), adjacent restaurant-tech categories (POS, scheduling, surveillance) that occupy mindshare and budget, and the implicit competitor every operator already uses - manager intuition. Brix Lens is positioned to win against the first group on segment fit and price, against the second by being complementary rather than competitive, and against the third on simple measurement-versus-no-measurement.

Competitor	Approach	Target Segment	How Brix Lens Differs
Agot AI	Computer vision for QSR drive-thru order accuracy and prep verification.	Enterprise QSR chains (Wendy's, Jersey Mike's pilots).	Brix Lens targets multi-unit independents and emerging chains underserved by enterprise vendors, with a lower price point and existing-camera deployment.
PreciTaste	AI prep forecasting and station-level guidance, deployed at large chains.	Top-100 enterprise QSRs (Chipotle and similar).	Brix Lens is observability-first rather than prescriptive, and requires no hardware refresh or new sensors.
Wobot.ai	Cloud video analytics for QSR with prebuilt use cases.	Mid-market and enterprise globally.	Brix Lens narrows scope to back-of-house cook/wait metrics with deeper per-patty lifecycle data, rather than broad checklist compliance.
Dragontail (DoorDash)	Kitchen and order management with limited CV.	Pizza chains and delivery-heavy operators.	Brix Lens is camera-native and does not depend on POS integration to surface insights.
Toast / Square (POS)	Front-of-house point-of-sale with reporting.	All restaurant sizes.	Brix Lens is complementary - addresses the back-of-house blind spot POS data cannot see.

Competitor	Approach	Target Segment	How Brix Lens Differs
7shifts / Crunchtime	Labor scheduling and compliance.	Multi-unit operators.	Brix Lens measures actual productivity per task, not just hours worked, and feeds those metrics back into scheduling tools.
March Networks / Envysion	Surveillance video analytics focused on loss prevention.	Enterprise chains.	Brix Lens repurposes video for operations rather than security, with operator-friendly dashboards rather than incident review tools.

Innovation - What Is Genuinely New

The novel technical contributions in Brix Lens are not the use of YOLO for detection, which is well-trodden. They are the way our pipeline turns raw object-tracking output into operationally meaningful events:

- **State-machine cook-stage classification.** Brix Lens layers a lightweight state machine on top of the IOU tracker that maps tracked objects through waiting -> cooking -> removed transitions, producing per-item lifecycle metrics rather than raw bounding-box counts. This is the layer that converts CV output into operator-meaningful KPIs and is one of the more defensible parts of the system.
- **Multi-video aggregation with normalized identity.** Aggregating per-patty events across multiple recording sessions and camera angles into a single time series requires identity reconciliation that is non-trivial in practice. Our aggregation logic and the Supabase schema underneath it are unique to Brix Lens.
- **Hardware-free deployment posture.** The product runs against existing CCTV with no on-prem appliance. The operational and commercial implications - one-day pilots, no procurement of physical hardware - are themselves a differentiator from every enterprise CV vendor in the space.

7. Intellectual Property

Brix Lens currently has no IP filings. The team is approaching IP from a forward-looking, post-graduation perspective: we are identifying which elements are potentially patentable, which are best protected as trade secrets, and which are already protected automatically, before deciding what to formally pursue. The path runs through Penn's Center for Innovation (PCI) given that the project was developed within a Penn course.

Current Status

- No utility or provisional patent has been filed.
- The senior design poster session and this deliverable constitute public disclosure events. Under U.S. patent law this starts a one-year clock during which a provisional patent application can still be filed. Any patent strategy must move within that window.
- Brix Lens source code is automatically protected by copyright as it is written; the dashboard UI is similarly protected.
- "Brix Lens" as a brand name has not been trademarked. A USPTO clearance search and intent-to-use trademark filing is on the post-graduation checklist before any commercial launch.

Penn IP Policy and Center for Innovation

Under Penn's Patent and Tangible Research Property Policies, IP developed by students in the course of a course or independent study is generally student-owned, but Penn may have rights when the work uses substantial university resources or is jointly developed with faculty. Because Brix Lens was advised by Prof. Swapneel Sheth and built within CIS 4010, the team will engage Penn Center for Innovation (PCI) before any commercial filings to confirm ownership, secure any required licenses, and document the chain of contribution. PCI also offers a streamlined path for student-founded companies that we expect to use rather than navigating IP independently.

Potentially Patentable Subject Matter

- The state-machine cook-stage classification method (mapping tracked-object trajectories to operator-meaningful lifecycle states) appears novel in the QSR CV literature we reviewed. Strongest candidate for a provisional filing.
- The multi-video aggregation methodology that normalizes per-item events across camera positions and recording sessions into a unified time series.
- The heat-map generation pipeline that ties spatial coverage to operator action zones rather than raw motion density.

Best Protected as Trade Secret

- Curated training datasets and annotation conventions developed during senior design and any commercial pilots.
- Specific transition rules, dwell-time thresholds, and tracking parameters in the state machine, which are tuned empirically and not visible to end users.
- Aggregation logic and SQL/Supabase schema decisions tuned for restaurant operations workloads.

Defensibility Strategy

Realistically, a senior-design-stage company's defensibility comes from speed-to-market, accumulated proprietary data, and customer relationships rather than from a single patent. The team's plan is: (1) file at minimum one provisional patent on the state-machine method within the one-year disclosure window if PCI confirms student ownership; (2) keep training data and tuning details as trade secrets, formalized in employment and contractor agreements once the company is incorporated; (3) accumulate a commercial-kitchen dataset that becomes the practical moat against later entrants; (4) trademark the Brix Lens name in connection with restaurant operations software. We expect the dataset moat to ultimately matter more than any single patent claim.

8. Cost Structure

The cost model splits cleanly into annual fixed cost - dominated by founding-team engineering time and meaningful legal/compliance line items - and per-location variable cost driven by cloud compute, storage, and bandwidth. The MVP we shipped during senior design ran on a Supabase free tier and team-personal compute; the numbers below project the cost of operating Brix Lens as a small post-graduation company.

Cost Item	Amount	Notes
Fixed Costs (Annual)		
Core engineering & product (post-grad founding team)	~\$180,000 / yr	Founder time valued at modest market rates; covers CV, backend, dashboards.
Model retraining & R&D infrastructure	~\$40,000 / yr	Annotation tooling, GPU credits, dataset expansion for commercial kitchens.
Legal, privacy & compliance	~\$25,000 / yr	Higher than most early SaaS due to state-by-state employee monitoring law review.
G&A (incorporation, accounting, tooling)	~\$10,000 / yr	Delaware C-corp formation, bookkeeping, software.
Total fixed (Year 1)	~\$255,000 / yr	Excludes any seed-funded marketing or sales hires.
Variable Costs (Per Location, Per Month)		
Cloud compute (CV inference, batch processing)	~\$25 / location / mo	Mix of CPU inference + scheduled GPU bursts; Supabase-backed pipeline.

Cost Item	Amount	Notes
Cloud storage	~\$5 / location / mo	Short-term frame buffer; permanent storage of derived metrics only.
Bandwidth & data transfer	~\$10 / location / mo	Compressed uploads; edge-side preprocessing reduces volume.
Customer onboarding & support	~\$10 / location / mo	Self-serve docs plus light-touch support during ramp.
Total variable	~\$50 / location / mo	Drops with scale and edge-processing investment.

Two assumptions worth flagging. First, founding-team engineering compensation is held below market rate in Year 1; a future seed raise would normalize this and increase fixed costs proportionally. Second, the legal and compliance line item is intentionally larger than is typical for an early-stage SaaS, because per-state employee monitoring law review is a real and recurring need for a product that processes workplace video.

9. Revenue Model

Brix Lens is a per-location SaaS subscription. The model is intentionally simple: one price per location per month, all dashboards included, with no per-seat or per-camera surcharges. Simplicity is itself part of the segment fit - operators in the primary customer segment buy software in the same way they buy POS terminals or scheduling tools.

Pricing

- **Standard plan:** \$150 per location per month. Includes the live dashboard, historical trend analysis, multi-video aggregation, heat maps, and standard support.
- **Multi-location plan (3+ locations):** Same per-location price with cross-location benchmarking views and standardization reporting unlocked. The team's default sell-in motion targets this plan.
- **Pilot pricing (Year 1 only):** \$0-\$75 per location per month for the first three to five anchor pilots, in exchange for case-study rights and access to commercial-kitchen footage that retires the home-kitchen training limitation noted in our senior design poster.

Unit Economics

Subscription revenue (per location, per month)	\$150
Variable cost (per location, per month)	\$50
Contribution margin per location per month	\$100
Gross margin %	~67%
Annual fixed cost coverage break-even	~213 active locations (\$255K / \$1,200 contribution per location per year)
Indicative customer ROI at 1 labor hour saved per day	\$300-\$400 / location / month, vs. \$150 subscription

Customer ROI math is the foundation of the pricing decision. Saving one labor hour per day at a fully-loaded \$15/hour wage is roughly \$450 per location per month, against a \$150 subscription. That 3x value-to-price ratio is intentional: it gives operators a clear payback story, gives Brix Lens room to raise prices later as the dataset and product mature, and leaves enough cushion that a few quiet operational improvements still justify the renewal.

Future Revenue Lines (Post-Graduation)

- Add-on modules priced separately: prep-station forecasting, drive-thru timing, food-safety event detection. Each is a natural extension of the existing CV pipeline.
- Data products for franchisor brand HQs: anonymized cross-franchisee benchmarks sold to brand corporate, with explicit franchisee opt-in.
- Integration revenue: paid integrations with major scheduling and POS vendors (7shifts, Toast, Square) once the customer base justifies the integration investment.

10. Risks, Regulatory Navigation & Post-Graduation Path

Risks We Have Already Mitigated

- Data permanence. The Supabase Postgres backend and aggregation pipeline are shipped, so per-frame and per-patty events persist across sessions and power historical comparisons. This was an open risk during the academic year and is now closed.
- Multi-video aggregation. The aggregation layer that combines events across recording sessions is implemented and powering the multi-video dashboards.
- End-to-end pipeline integration. The CV layer (YOLOv8 + IOU tracker + state machine), the data layer (CSV/JSON aggregation + Supabase), and the React frontend all run as a single deployed system rather than as disconnected prototypes.

Risks That Remain Open

- **Commercial validation.** The model was trained and evaluated on home-kitchen footage because legal and corporate access to commercial kitchens was not available during the academic year. Closing this gap is the first technical priority post-graduation; it is also the highest-leverage thing a paid pilot unlocks.
- **Data quality in production environments.** Real kitchens have occlusions, inconsistent lighting, and constrained camera angles. We expect retraining and per-deployment calibration to be a recurring cost, not a one-time investment.
- **Employee acceptance.** Workplace video analytics is reasonably perceived as surveillance unless the rollout is handled deliberately. Brix Lens framing as operator-enablement, anonymized aggregates by default, and explicit notice protocols are baked into the product, but cultural fit at each customer is something the operator has to lead.

Regulatory Navigation - Why This Is Hard

Workplace video analytics in the United States is governed by a patchwork rather than a single statute. Navigating it is a real cost driver for an early-stage company and a non-trivial reason large incumbents are slower to ship into smaller-operator segments where compliance has to be re-validated for each customer's state mix.

- **State employee monitoring laws.** Connecticut, Delaware, and New York require written notice to employees that electronic monitoring may occur. Several other states require posted notices. Brix Lens deployments need to surface a compliant notice template per state, and the operator has to actually post it.
- **Biometric privacy regimes.** Illinois' BIPA is the sharpest edge - private rights of action, statutory damages per violation, and aggressive plaintiff's bar. Texas and Washington have analogous regimes. Brix Lens does not run face recognition, but any feature drift toward biometric identifiers (e.g., gait-based identity) would trigger BIPA exposure and is gated behind explicit legal review.
- **Franchise tech-vendor approval.** Most franchise agreements require franchisor approval for technology installed in franchisee locations. Selling into a franchise system effectively means selling twice: once to the franchisee and once to corporate.
- **California and emerging state privacy law.** CCPA/CPRA treats employee data as personal information and adds notice and access obligations. Other states are following. Brix Lens' default of storing derived metrics rather than raw video reduces but does not eliminate this surface area.
- **International expansion (out of scope near-term).** GDPR's treatment of workplace monitoring is materially stricter than U.S. law; Brix Lens will not pursue EU customers until a meaningful legal budget is in place.

The takeaway for the business model is concrete: the legal/compliance line item in the cost table is intentionally larger than typical for an early-stage SaaS, and our sales motion is shaped to start in U.S. states with the cleanest monitoring statutes before expanding.

Post-Graduation Commercialization Path

The future-work items on the senior design poster (end-to-end lifecycle tracking, micro/macro insights) become the company roadmap rather than course tasks. The 12-18 month plan, if the team chooses to pursue Brix Lens commercially after graduation, looks like this:

- **Months 0-3:** Engage Penn Center for Innovation to confirm IP ownership; file at least one provisional patent on the state-machine method; complete USPTO clearance and intent-to-use trademark filing for "Brix Lens." Incorporate as a Delaware C-corp.
- **Months 1-6:** Convert the team's warm relationships - the Wendy's franchise owner in Michigan, regional contacts in Philadelphia, and the team's networks - into 3-5 paid pilots. Pilot pricing covers variable cost; the deliverable that matters is commercial-kitchen footage, retention data, and a case study.
- **Months 4-9:** Open structured outreach to lower-end fast-food operators - regional burger chains, family-owned fast-food brands, independent drive-in operators - where the segment fit is closest and the procurement cycle is shortest. This is the segment where Brix Lens' hardware-free, sub-\$200/month positioning is most differentiated.
- **Months 6-12:** Use pilot case studies and early retention data to raise an angel or pre-seed round (~\$500K-\$1M). Use proceeds to hire one full-time engineer beyond the founding team and one part-time legal/compliance contractor to scale state-by-state monitoring law coverage.
- **Months 12-18:** Expand into emerging-chain customers (10-50 locations), build the first integrations with 7shifts and Toast, and revisit the enterprise segment selectively if any anchor customer asks for it.

Several team members have post-graduation employment lined up, so the company's viability depends on either a subset of the team committing full-time or structuring as part-time founding work with a clear hand-off if and when the company raises. That decision is itself a Months 0-3 item.

Bibliography

- BitVivid Solutions. "The Role of Video Analytics in QSR Operations." BitVivid Solutions Blog, February 17, 2025.
- CloudKitchens. "How to Calculate Restaurant Labor Cost." CloudKitchens Blog, January 27, 2025.
- Interface Systems. "Video Analytics Solution to Uncover Powerful Business Insights." Interface Systems Website, 2024.
- Isarsoft. "QSR Video Analytics: How AI Transforms Restaurants." Isarsoft Blog, October 14, 2024.
- Mordor Intelligence. "Restaurant Management Software Market - Size, Share & Growth Analysis," 2025.
- National Restaurant Association. "2024 State of the Restaurant Industry Report."
- Penn Center for Innovation. "Inventor & Entrepreneur Resources," University of Pennsylvania.
- Restaurant365. "How to Calculate Labor Costs: Key Metrics for Restaurants." Restaurant365 Blog.
- StaffedUp. "What Should Labor Cost Be in a Restaurant?" StaffedUp Blog, October 21, 2025.
- U.S. Patent and Trademark Office. "Provisional Application for Patent," guidance, 2024.
- When I Work. "Restaurant Labor Cost Formula: Complete Guide." When I Work Blog, May 27, 2025.
- Wobot.ai. "QSR Video Analytics Software - QSR Software for Restaurant." Wobot.ai Industry Page.