

# Negotiator Agent – Phase 1–9 Verification & Acceptance Proof

This document verifies that **Task-1: Negotiator Agent** has fully implemented and passed **Phase 1 through Phase 9** as required in the Sales Intelligence & Coaching Agents assignment.

It serves as an evidence-based validation showing how each phase was **implemented and enforced in practice**, not merely described. This document should be read alongside the Negotiator Agent documentation and the project repository.

## System Scope Reminder

- **Agent:** Negotiator Agent
- **Mode:** Simulated real-time (streaming transcript chunks)
- **Data:** Mock-only (2–3 minute call transcripts)
- **Automation Level:** Level 1 – Shadow Mode
- **Output:** Rep-facing whisper coaching suggestions

## PHASE 1 – Task Decomposition

### Requirement

- Decompose live negotiation assistance into a repeatable, automatable intelligence workflow.

### Implementation Evidence

- **Trigger:** New transcript chunk during an active call

- **Context:** Current chunk + short rolling context window
- **Decision:** Sentiment analysis + objection detection + confidence gating
- **Action:** Display whisper suggestion to rep (or no action)
- **Feedback:** Rep response optionally logged

### **Acceptance**

- The live negotiation task is decomposed into deterministic, testable micro-decisions with clear inputs and outputs.

## PHASE 2 – Automation Classification

### **Requirement**

- Correctly classify which parts are automatable and which must remain human-controlled.

### **Implementation Evidence**

- **ML-Lite:** Sentiment detection (label + confidence)
- **Rules:** Objection detection and confidence gating
- **LLM:** Natural-language whisper generation (structured JSON)
- **Fallback:** Deterministic templates when LLM fails
- **Human-controlled:** All customer-facing actions and final decisions

### **Automation Level**

- Level 1 – Shadow Mode (insights only, no execution)

### **Acceptance**

- Automation boundaries are explicit, conservative, and enforced in code.

## PHASE 3 – Agent Architecture

### Requirement

- Define a clear, modular agent architecture with isolated responsibilities.

### Implementation Evidence

Architecture Components:

- Trigger / Runner: run\_stream.py
- Context Builder: rolling transcript window
- Signal Extraction: sentiment\_engine.py, objection\_detector.py
- Decision Engine: decision\_engine.py
- Action Formatting: output\_formatter.py
- Feedback Logging: feedback\_logger.py

Flow Pattern: **Input → Understand → Decide → Suggest → Log**

### Acceptance

- Architecture is modular, explainable, and aligned with the shared backbone used across all agents.

## PHASE 4 – Control Plane & Orchestration

### Requirement

- Define when and how the agent runs, including safeguards.

### Implementation Evidence

- Execution model: simulated streaming via transcript chunks
- Entry point: python -m src.agents.negotiator\_agent.run\_stream

- Per-chunk processing loop with low latency
- Kill switch checked before and during execution

### **Acceptance**

- Orchestration is predictable, safe, and fully controlled.

## PHASE 5 – Decision Engines

### **Requirement**

- Implement explainable intelligence logic.

### **Implementation Evidence**

- Sentiment analysis using ML-lite, explainable scoring
- Objection detection using deterministic rules
- Confidence computation combining signals
- LLM-first whisper generation with strict validation
- Deterministic fallback on failure

### **Acceptance**

- Decisions are transparent, auditable, and never directly trigger actions.

## PHASE 6 – Human-in-the-Loop Design

### **Requirement**

- Ensure humans remain in control of all consequential actions.

### **Implementation Evidence**

- All whispers are suggestions only
- Rep may accept, ignore, or edit
- No penalties for ignoring AI output
- Feedback captured via feedback\_logger.py

### **Acceptance**

- Human control is mandatory by design.

## PHASE 7 – Observability & Feedback

### **Requirement**

- Enable auditing and monitoring of system behavior.

### **Implementation Evidence**

- Whisper outputs include confidence and debug metadata
- Feedback stored in JSONL format
- Override and ignore rates measurable

### **Acceptance**

- System behavior is observable without altering execution.

## PHASE 8 – Progressive Automation Ladder

### **Requirement**

- Declare and enforce the correct automation level.

### **Implementation Evidence**

- Current level: Level 1 – Shadow Mode
- No autonomous execution
- Explicit separation of insight and action

### **Acceptance**

- Automation level is explicit and respected.

## **PHASE 9 – Governance, Safety & Kill Switches**

### **Requirement**

- Ensure system-wide safety and emergency shutdown.

### **Implementation Evidence**

- Global kill switch
- Per-agent kill switch (negotiator\_agent)
- Safe degradation when disabled
- No customer-facing automation

### **Acceptance**

- The agent can be disabled instantly without side effects.

## **Final Acceptance Statement**

All nine phases for the Negotiator Agent have been implemented, verified, and evidenced through code, outputs, and documented behavior. The agent satisfies all evaluation criteria for correctness, safety, explainability, and human control, and is ready for demonstration and assessment.