

FINAL EVALUATION REPORT

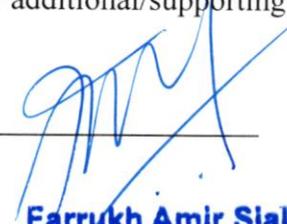
(As Per Rule 35 of PP Rules, 2004)

- 1 Name of Procuring Agency Federal Board of Revenue (HQ)
- 2 Method of Procurement Single Stage One Envelope
3. Title of Procurement **AUTHORIZED VENDORS FOR INSTALLATION AND MAINTENANCE OF VIDEO ANALYTICS SYSTEM FOR COTTON BALES COUNTING IN TEXTILE SECTOR (THREE YEARS FROM AUTHORIZATION)**
4. Tender Inquiry No. 5(2)S(Admin)/2025
5. PPRA Ref. No. (TSE). TS560028E EPADS Ref. No. F-250443925
6. Date & Time of Bid Closing 15th May, 2025 11:00 AM
7. Date & Time of Bid Opening 15th May, 2025 11:30 AM
8. No of Bids Received 04
9. Criteria for Bid Evaluation Criteria laid down in RFP Documents
10. Details of Bid(s) Evaluation Bids were evaluated in accordance with the criteria laid down in the RF documents

Name of Bidder	Marks/ POCs compliance			Total Score	Rule/Regulation/SBD*/Policy/Basis of Rejection/Acceptance as per Rule 35 of PP Rules, 2004.
	Technical (if applicable)	Status of POCs	Financial (if applicable)		
M/s Obsidian	45	Successful	-	45	Responsive
M/s Authentik	49	Unsuccessful	-	49	Non-responsive
M/s C Square Consulting Pvt Ltd	43	Incomplete/ unsuccessful	-	43	Vendor has withdrawn from POC/Bid Process
M/s ISSM Labelling Solution Pvt Ltd	44	Successful	-	44	Responsive

11. Any other additional/supporting information, the procuring agency may like to share.

Signature: _____


Farrukh Amir Sial
Secretary (Administration)
Federal Board of Revenue
Islamabad

Official Stamp: _____

(Remaining committee members signature placed at Annex-I)

***Standard Bidding Documents (SBD).**

INVITATION TO BID

FINAL EVALUATION REPORT

Invitation to Bid Reference No.	F.No. 5(2)S(Admn)/2025
Invitation to Bid Title	Hiring of Authorized Vendors for Installation and Maintenance of Video Analytics System for Cotton Bales Counting in Textile Sector
Invitation to Bid Issuance/ Publishing Date	29 th March, 2025
1st Pre-Bid Meeting date	11 th April, 2025
2nd Pre-Bid Meeting date	18 th April, 2025
Corrigendum No. 1 date	23 rd April, 2025
Bids Submission date/time	15 th May, 2025 at 1130 a.m.
Publishing	National Press (two leading national daily newspapers – One English and One Urdu) Website(s): FBR
Procurement Method/ Process	Single Stage Single Envelope – Invitation to Bid – Open
Technical Bids Evaluation Report Signing Date	23 rd September, 2025

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Annexure-I	Invitation to Bid Publications (Clippings)
Annexure-II	Technical Bid Opening Statement.
Annexure-III	Mandatory Requirements for Eligibility/Responsiveness and Bid Evaluation Criteria (Technical)
Annexure-IV	Proof of Concept (POC) Report



1. Project Background

The Federal Board of Revenue (FBR) is undertaking a significant digitalization initiative aimed at enhancing its tax collection capabilities and addressing structural gaps in Pakistan's tax system. As part of this transformation, FBR seeks to deploy a video analytics system on all spinning facilities in Pakistan to improve tax compliance, prevent revenue leakage, and enhance traceability within the textile sector, particularly in the handling of cotton bales at spinning players in Pakistan. As part of the agreement, selected vendors responsible for providing turnkey solution including complete system operationalization and will also be responsible for providing post installation maintenance and tech support services.

2. Brief Description of the Requirements

(a) **Objective & Vision:** FBR recognizes the critical role of technology in addressing challenges related to tax evasion, unreported production, and supply chain discrepancies within the textile sector. This initiative aims to establish a real-time, Computer Vision based production counting system that provides complete visibility into cotton bale consumption at spinning units through counting. The Video Analytics System will use object detection and machine vision (non-exhaustive) to count each bale as it is stacked, ensuring precise tracking. The system will allow FBR to validate reported consumption, enhance tax compliance, and enable data-driven enforcement.

(b) **Scope of the Video Analytics System:** The implementation of this turnkey system will involve the installation, integration, and maintenance of computer vision video analytics solutions at designated production zones. The vendors will be required to:

- Deploy cameras to capture real-time footage at specified monitoring points.
- Implement a system that processes video data locally with remote access at centralized monitoring unit (i.e., FBR monitoring hub)
- Utilize computer vision models capable of detecting and accurately counting cotton bales with an accuracy of 99%.
- Ensure seamless integration with FBR's data repositories and enforcement dashboards, enabling automated reporting and auditability i.e., FBR monitoring hub
- The system must support secure live video streaming access for FBR, allowing authorized personnel to monitor selected camera feeds in real-time as needed
- Provide customizable alert mechanisms to flag issues and support transparent compliance monitoring.

(c) **System Testing & Maintenance:** To validate system effectiveness, vendors shall conduct a Proof of Concept (POC) at designated site or sites (spinning unit) to ensure:

- The accuracy of object detection and counting (accuracy of 99%)
- Compliance with functional and performance benchmarks.
- Seamless compatibility between hardware and software components.
- Real-time data capture, automated reporting capabilities, and integration with FBR's central monitoring hub.

Additionally, vendors will be responsible for (but not limited to):

- Providing comprehensive maintenance and support services, including periodic updates to computer vision models.
- Ensuring system stability, troubleshooting, and timely performance optimization.
- Delivering training sessions to enforcement personnel for effective system utilization and oversight.



3. Brief Terms of Invitation to Bid Document

Period for delivery of services	FBR intends to ensure that all notified taxpayers are covered by vendors that are to be authorized to deploy the video analytics solution. FBR may define and/or revise the timeline based on operational needs. Indicative schedule for Deployment (cumulative) a. 30th August 2025- 20% of the total notified taxpayers b. 30th October 2025 - 50% of the total notified taxpayers c. 31st December 2025 - 100% of the total notified taxpayers Authorized vendor(s) should have all required equipment (hardware and software) readily available to be able to deploy the required video analytics system across textile spinning premises Commencement date for delivery: Within 2 weeks of receiving purchase order from manufacturer
Bid Validity from bid opening	The Bid Validity period shall be 120 days or extendable as mutually agreed.
Bid Security	PKR 1,000,000 (mandatory)
Performance Security/Guarantee	The Performance Guarantee shall be applicable and will be set at fixed amount of PKR 5,000,000 only. Note: This limit may be revised and lowered
Liquidated Damages	Rate: A penalty of 0.2% of the total project value per day of noncompliance for each affected manufacturer site. Maximum Deduction: The cumulative penalty shall not exceed the value of the performance guarantee submitted by the Vendor.
Currency for Evaluation of Bid	Pak Rupees (PKR)

4. Bid Process

The bidding process for the subject activity is Single Stage Single Envelope – Invitation to Bid – Open. Invitation to Bid notification was published in national press (two leading national daily newspapers – One English and One Urdu) on 29th March, 2025 (**Annexure-I**) as well as uploaded on e-PADS, FBR (<https://www.fbr.gov.pk/>) and PPRA (<https://www.ppra.gov.pk/>).

Summary of bid process is listed below:

Invitation to Bid Reference No.	F.No. 5(2)S(Admn)/2025
Invitation to Bid Title	Authorized Vendors for Installation and Maintenance of Video Analytics System for Cotton Bales Counting in Textile Sector
Invitation to Bid Issuance/ Publishing Date	29 th March, 2025
1st Pre-Bid Meeting date	11 th April, 2025
2nd Pre-Bid Meeting date	18 th April, 2025
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5. Technical/ Financial Evaluation Committee

Following Technical/ Financial Evaluation Committee was designated for the evaluation of the subject Invitation to Bid:

Sr. No	Name	Designation	Role
1.	Dr. Hamid Ateeq Sarwar	(i) Member (Strategic Transformation) (ii) Member (IR-Ops)/Additional charge (iii) C.E.O, PRAL/ Additional Charge	Chairman/ Convener
2.	Mr. Ashhad Jawwad	Member (Customs Policy)	Member
3.	Dr. Najeebullah	Chief (Tax Reforms)	Member
4.	Dr. Muhammad Khurram	Chief (Mgt/HR-IR)	Member
5.	Ms. Ayesha Niaz	Chief (Mgt/HR-Customs)	Member
6.	Syed Fazal Samad	Chief (F&C) – Customs	Member
7.	Mr. Muhammad Ali Khan	Secretary (Exp) FBR	Member/ Secretary
8.	Mr. Waqar Ahmed	Second Secretary (IR-CPF)	Member/ On MCMC

6. Bid(s) Received

On the bid submission date and time (15th May, 2025 at 11:30 AM) following bids were received:

Sr. No	Bidder	Bid Submitted
1	Authentic	✓
2	C-Square Pvt Ltd	✓
3	ISSM Labeling Solution	✓
4	Obsidian	✓

7. Bid Opening

In accordance with the bid opening procedure of Single Stage Single Envelope method, bids were opened publicly on the same date immediately after bid submission time at FBR House by the Technical/ Financial Evaluation Committee in the presence of bidders authorized representatives. The bids availability on e-PADS was checked and confirmed in presence of bidders authorized representatives. Availability of bid security as per Invitation to the Bids terms, the bid opening statement is placed at **Annexure-II**.

8. Preliminary Examination

Preliminary examination of the technical bids was carried out. The examination included verification/ review of bidder bid form, completeness of the bid, eligible countries, bid validity confirmation and availability of bid security as per requirement of the Invitation to Bid. The finding(s) from preliminary examination, is summarized below:

Bidder	Bid Form	Eligible Country	Bid Validity	Bid Security	Substantial Responsiveness	Acceptance for detailed Examination
Authentic	Yes	Pakistan	Yes	Yes	Yes	Yes
C-Square Pvt Ltd	Yes	Pakistan	Yes	Yes	Yes	Yes
ISSM Labeling Solution	Yes	Pakistan	Yes	Yes	Yes	Yes
Obsidian	Yes	Pakistan	Yes	Yes	Yes	Yes

9. Detailed Technical Evaluation

- a. Mandatory Requirements for Eligibility/Responsiveness and Bid Evaluation Criteria (Technical) – **Annexure-III**

10. Bids Accepted as responsive to the Invitation to Bid

After conducting technical evaluation, following vendors found qualified in accordance with the criteria given in the IFB.

Sr.	Bidder
1	Authentic
2	C-Square Pvt Ltd
3	ISSM Labeling Solution
4	Obsidian

However, in accordance with terms and condition of IFB, vendors shall conduct a Proof of Concept (POC) at designated site or sites (spinning unit) to validate system effectiveness and also to ensure:

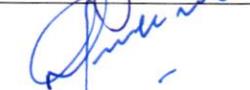
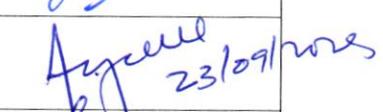
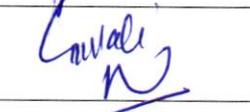
- The accuracy of object detection and counting (accuracy of 99%)
- Compliance with functional and performance benchmarks.
- Seamless compatibility between hardware and software components.
- Real-time data capture, automated reporting capabilities, and integration with FBR's central monitoring hub.

In order to comply with above condition, the vendors arranged a visit at designated sites where deputed team from the FBR conducted an evaluation of vendors' deployed solution and after completion of the said exercise, submitted a Proof-of-Concept Evaluation Report in respect of following vendors for installation of video analytic solution for counting cotton bales in textile spinning sector (**Annexure-IV**). As per the report of POC, the findings/recommendations of the deputed are as under:

Bidders	Status of POC	Remarks
ISSM Labeling Solution	Successful	Technically qualified and found responsive.
Obsidian	Successful	-Do-
Authentic	Unsuccessful	Technically disqualified
C-Square Pvt Ltd	Incomplete/ Unsuccessful	Vendor has withdrawn from POC/Bid Process

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10. Technical/ Financial Evaluation Committee Recommendations

Sr. No	Role	Designation	Signature
1.	Chair/Convener	(i) Member (Strategic Transformation) (ii) Member (IR-Ops) Additional charge (iii) C.E.O, PRAL/Additional Charge	
2.	Member	Member (Customs Policy)	
3.	Member	Chief (Tax Reforms)	
4.	Member	Chief (Mgt/HR-IR)	
5.	Member	Chief (Mgt/HR-Customs)	
6.	Member	Chief (F&C) – Customs	
7.	Member/ Secretary	Secretary (Expenditure), FBR	
8.	Member	Second Secretary (IR-CPF)	On MCMC

AUTHORIZED VENDORS FOR INSTALLATION AND MAINTENANCE OF VIDEO ANALYTICS SYSTEM FOR COTTON BALES COUNTING IN TEXTILE SECTOR

INVITATION TO BIDS

1. Sealed bids are invited from firms/entities, registered with PPRA on E-PADS as vendors and with Income Tax and Sales Tax Departments, and included in Active Taxpayer's List of FBR. The vendor must provide a fully integrated turnkey Video Analytics System, ensuring:
 - a. High-accuracy computer vision-based object detection (accuracy of 99%) for cotton bale counting.
 - b. Real-time data capture, processing, and reporting for tax enforcement purposes.
 - c. Seamless integration with FBR's monitoring platforms.
 - d. Remote access capabilities for FBR officials, with secured data transmission.
2. The Federal Board of Revenue now invites sealed bids from eligible authorized vendors for the deployment of a turnkey video analytics system for production counting in the Textile sector. Vendors are required to provide indicative pricing for all components in accordance with the specifications provided in this document. Additionally, the vendor must conduct a testing demonstration at a FBR designated site to validate their system's operational capability and compliance with technical and functional requirements.
3. Bidding documents are available on e-PADS and FBR/PPRA Websites i.e. <https://www.ppra.gov.pk> & <https://www.fbr.gov.pk/> and can be downloaded free of cost. Encrypted electronic bids duly completed and in conformity with Bidding Documents must be submitted online on e-Pak Acquisition and Disposal System (e-PADS) website by **11 AM, 8th May, 2025**.
4. The instant procurement for authorized vendors for installation and maintenance of video analytics system is being carried out under PPRA Ordinance, 2002 (including Section 2(i)) read with Public Procurement Rules, 2004. Furthermore, procurement structure has been designed keeping in view the Rule 4 and other relevant provisions under PPR, 2004 including but not limited to provisions as referred at Rule 15, Rule 21, Rule 29 and the rules connected thereto. The translation of the relevant provisions of PPR, 2004 into procurement design/structure has been made part of the instant bidding document.
5. The procurement process for this RFP shall follow a Single Stage bidding procedure with two pre-bid meetings:
 - a. Pre-bid meeting 1, to clarify vendor and industry queries, will take place on **10 AM, 11th April 2025, at Room 358, 3rd Floor, FBR House, Constitution Avenue, G-5, Islamabad**. The bidders who wish to join the meeting virtually can join by using the following link [Meeting Link: <https://vlc.fbr.gov.pk/meeting/> Meeting ID: 510510 Password: 510 Date: 11-04-2025 Time: 10 AM]
 - b. Pre-bid meeting 2, so vendors may present their preliminary solutions for feedback, in line with conditions mentioned in clause 1 of Invitation to Bid, will take place on **10 AM, 18th April 2025, at Room 358, 3rd Floor, FBR House, Constitution Avenue, G-5, Islamabad**.
6. The authorized vendor(s) will install the Video Analytics system and would be authorized to charge from the manufacturer as per agreed arrangement between vendor and manufacturer.
7. All bids must be accompanied by a Bid Security in an acceptable form in the amount of PKR 1,000,000, only or equivalent amount in any freely convertible currencies in case of foreign Bidders.
8. Interested eligible bidders may request for further information/clarification by email at hasham.malik@fbr.gov.pk during official Business Days and timing at the address given below, within Seven (07) days before the proposal submission deadline.
9. To ensure clarity and address any questions from prospective bidders regarding the procurement process, technical specifications, and requirements, a pre-bid meeting will be organized. Attendance is encouraged for all interested parties to facilitate a better understanding of the project scope and deliverables including clarification of technical specifications and Q&A session to address bidder queries.
10. The original bid along with 1 original 2 certified copy(s), properly filled in, and enclosed in sealed envelope(s) must be delivered to the address, **Room 506, Fifth Floor, FBR House, Constitution Avenue, G-5, Islamabad, by 11 AM, 8th May, 2025**. The bids shall be opened on the same day & date i.e. at **11:30 AM** promptly thereafter in public and in the presence of bidders' representatives who choose to attend in the opening at **Room 358, 3rd Floor, FBR House, Constitution Avenue, G-5, Islamabad**.
11. In case opening date(s) is declared as a Public Holiday by the Government, the next working date shall be deemed to be the date for submission and opening of tender(s) at the same time and place. FBR may reject all bids at any time prior to the acceptance of a bid by invoking rule 33 of Public Procurement Rule (PPR), 2004. Additionally, bids will not be entertained if not submitted via E-Pads.

[Muhammad Khalid Jamil]

Chief (Transformation Delivery Unit)

Room# 575, 5th Floor, FBR (HQ), Islamabad, Ph#9219649

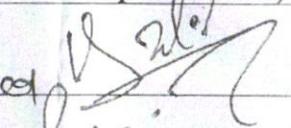
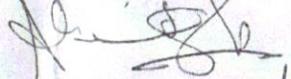
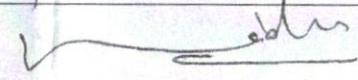
BID OPENING

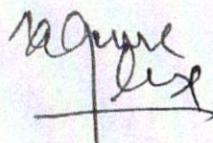
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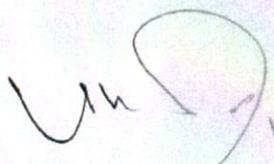
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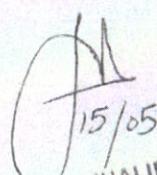
PROCEDURE: SINGLE STAGE ONE ENVELOPE

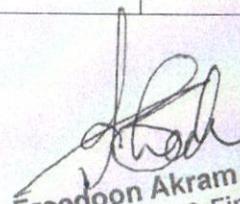
Bid opening date: 15th May, 2025 **Time:** 11:30AM

S.No.	Firm Name	Representative Name	Bid Submitted both (Hard/EAPDS)	Bid Security	Soft Copy	Signature (firm representative)
1.	Obsidian	USama Zahid	Yes	Yes	Yes <i>To be provided</i>	
2.	Authentik	S.M. Haider	Yes	Yes	Yes	
3.	C Square Consulting Pvt Ltd	Ahmad Jan	Yes	Yes	No	
4.	ISSM Labelling Solution Pvt Ltd	Haider Shafiq	Yes	Yes	Yes	
5.	/	/	/	/	/	
6.	/	/	/	/	/	


WAQAR AHMED
Second Secretary (CPF Funds)
IRS-CPF Secretariat, FBR


AHMED FAIZ
SS (DU)


HASHAM KHALID MALIK
Secretary (Admn)
Federal Board of Revenue
Islamabad


Freedon Akram Sheik
Chief (Admn & Finance)

Technical Bid Evaluation Sheet

AUTHORIZED VENDORS FOR INSTALLATION FOR INSTALLATION AND MAINTENANCE OF VIDEO ANALYTICS SYSTEM FOR COTTON BALES COUNTING IN TEXTILE SECTOR

Total Marks: 59
Qualifying marks 70% of the total marks 41.3

S.No.	Particulars	Points System	Authentic	C-Square (Pvt) Ltd	ISSM Labeling Solutions	Obsidian
A.	Number of projects involving real-time object detection in any industry and or/sector	3 or more projects = 15 marks 2 projects = 10 marks 1 project = 5 marks 0 project = 0 marks	10	10	15	15

2. Specific experience in deployment of Video Analytics Systems

B.	Number of projects involving real-time production counting using end to end video analytics system in any industry/setting	3 or more projects = 15 marks 2 projects = 10 marks 1 project = 5 marks 0 project = 0 marks	10	10	10	10
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3. Specific experience IT Systems

C.	Number of projects where the applicant deployed IT systems integrated with video analytics for production counting	3 or more projects = 15 marks 2 projects = 10 marks 1 project = 5 marks 0 project = 0 marks	15	10	5	10
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4. Technical proposal presentation

	Video Analytics System	Marks 01 or 00 (Marks for weightage)	Authentic	C-Square (Pvt) Ltd	ISSM Labeling Solutions	Obsidian
A.	Industrial and standard Power Source Supply	Mandatory	1	1	1	1
B.	Industrial and standard switch	Mandatory	1	1	1	1
C.	Industrial and standard electrical cabinet	Mandatory	1	1	1	1
D.	Proper cable management with identification tags reflected in the documentation	Mandatory	1	1	1	0
E.	Available space for modification and expansion	Mandatory	1	1	1	0
F.	Industrial level cables and connectors	Mandatory	1	1	1	0
G.	Accessibility for procurement in Pakistan	Mandatory	1	1	1	0
H.	UPS (Uninterruptable Power Supply)	Mandatory	1	0	1	1
I.	Robust and industry-level hardware connectors	Mandatory	1	1	1	1
J.	Accessibility of hardware for procurement in Pakistan	Mandatory	1	1	1	1
	Sub-Total:		10	9	10	6

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Technical Bid Evaluation Sheet

AUTHORIZED VENDORS FOR INSTALLATION FOR INSTALLATION AND MAINTENANCE OF VIDEO ANALYTICS SYSTEM FOR COTTON BALES COUNTING IN TEXTILE SECTOR

Total Marks: 59

Qualifying marks 70% of the total marks 41.3

S.No.	Particulars	Points System	Authentic	C-Square (Pvt) Ltd	ISSM Labeling Solutions	Obsidian
	Video Analytics System	Marks 01 or 00 (Marks for weightage)	Authentic	C-Square (Pvt) Ltd	ISSM Labeling Solutions	Obsidian
A.	System is scalable	Mandatory	1	1	1	1
B	Integration with other software / systems (e.g., databases, web-based application, systems)	Mandatory	1	1	1	1
C	Built in cyber security measures to prevent data tampering (e.g., local server, data transmission etc.)	Mandatory	1	1	1	1
D	User friendly interface	Mandatory	1	1	1	1
	Sub-Total:		4	4	4	4
	Total:-		49	43	44	45

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**Government of Pakistan
Revenue Division
Federal Board of Revenue
Inland Revenue
Transformation Delivery Unit

Subject: **Submission of POC (Proof of Concept) Evaluation Report in respect of Textile Sector.**

Please refer to the subject noted above.

2. In pursuance of letters No.1(42)SA-M(IR-Ops)/2025/114368-R dated 08-09-2025 and 1(42)SA-M(IR-Ops)/2025/109145-R dated 29-08-2025, the Proof-of-Concept(POC) evaluation report in respect of video analytics solution for counting cotton bales in textile spinning sector is enclosed for your kind perusal and further necessary action.



(Abdur Rehman)
Second Secretary (VCD-II)
Transformation Delivery Unit
FBR (Hqrs), Islamabad

Encl:As Above

Secretary (Technical /Financial Committee), Federal Board of Revenue, Islamabad

U.O.4(1)SS(TDU)2025/Textile/ 117951-R

Dated:16-09-2025

FBR COTTON BALE PRODUCTION COUNTING SOLUTION – POC REPORT

1. ISSM Labelling

- **POC Site:** Sadaqat Limited, Faisalabad
- **Initial Demonstration:** 15th July 2025
- **Revised Demonstration:** 18th July 2025
- **Final Demonstration:** 3rd September 2025
- **Status Base-case:** Successful
- **Status Edge-case:** Successful

Overview:

ISSM deployed a video analytics-based bale counting solution at Sadaqat's spinning unit. The solution was positioned to monitor bale movement into the blendomat area. The software attempted real-time identification and counting using a bounding box-based object detection model. System employed a GeForce RTX 50 Series GPU. Multiple rounds of POC tests were conducted with a minimum testing of 20+ bales in each round.

The POC criteria in the RFP required POCs to be conducted over a 24-hour period with a sample size of 100 bales. Due to practical constraints at each of the POC sites including but not limited to space constraints, testing causing interference in production processes of the manufacturer, and availability of staff and labour for the testing – the POC team relied on multiple testing rounds with parameters based on the conditions at each POC site.

Strengths Observed:

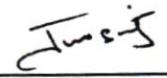
- 100% accuracy with correctly identified and counted bales under standard conditions.
- 100% accuracy with bale transitions across the designated ROI.
- 100% accuracy and correct identification of bales and non-bale items in edge-cases including manual loading, covered bales, empty lifter/forklift.
- 100% accuracy and correctly identified waste (open and loosely packed) as non-bale item
- Dashboard was online and functional

Gaps and Limitations:


Rizwan Sarfraz
Joint Director(T&TS)


Abdur Rehman
Second Secretary


Adnan Jabbar
Second Secretary


Fakhar Sharif
Pral representative

- Misclassified fully packed waste in the same shape as cotton bales as production item.
- Alerts reporting system was not included in the solution deployed for POC testing.

2. Obsidian

- **POC Site:** Sadaqat Limited, Faisalabad
- **Initial Demonstration:** 17th July 2025
- **Revised Demonstration:** 18th July 2025
- **Final Demonstration:** 4th September 2025
- **Status Base-case:** Successful
- **Status Edge-case:** Unsuccessful

Overview:

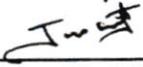
Obsidian presented a video analytics solution aimed at monitoring bale entry into the blendomat line. Their AI model utilized region-based object detection and counting triggers to detect bale entries. System employed a GeForce RTX 50 Series GPU. Multiple rounds of POC tests were conducted with a minimum testing of 20+ bales in each round

Strengths Observed:

- System achieved 100% accuracy in counting bales and accounting for bale transitions with a trolley/forklift
- System achieved 100% accuracy in counting of covered bales
- System achieved 100% accuracy in correct identification of loose waste

Gaps and Limitations:

- System was not operational for 90+ minutes due to multiple unspecified faults after manual restart. On-site team was unable to provide a solution.
- System achieved 50% accuracy in counting manual bale movements with consistent misidentification/counting of transitions within the field of view.
- Misclassified fully packed waste in the same shape as cotton bales as production item.

			
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- Dashboard was missing on-prem and on cloud during all trials
- Alerts reporting system was not included in the solution deployed for POC testing.

3. Authentik Track & Trace

- **POC Site:** Interloop Limited, Faisalabad
- **Initial Demonstration:** 16th July 2025
- **Revised Demonstration:** 18th July 2025
- **Final Demonstration** 10th September 2025
- **Status Base-case:** Unsuccessful
- **Status Edge-case:** Unsuccessful

Overview:

Authentik showcased their on-prem-based production monitoring platform, aiming to deliver real-time bale counting using high-resolution camera feeds installed in the Autopicker area. System employed a GeForce RTX 30 Series GPU. Multiple rounds of POC tests were conducted with a minimum testing of 20+ bales in each round

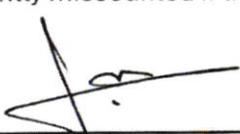
Strengths Observed:

- System showed some improvements in capturing fast moving manual bale movement but below 95% accuracy
- System achieved 100% accuracy in identifying reverse movement of bales

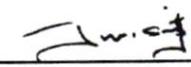
Gaps and Limitations:

- System achieved 55% accuracy in counting regular movement of bales in base case scenarios (uncovered, regular speed).
- Solution consistently double-counted single bale movements in multiple variations (regular speed, fast speed).
- System achieved 25% accuracy in counting covered bales with no consistent logic identified.
- System consistently miscounted if there were additional workers/people in the field of view


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- After multiple errors the system entirely failed in identifying any bales correctly
 - Dashboard was not operational
 - Solution was still in source-code / script format and not finalized as an executable program.
 - Alerts reporting system was not included in the solution deployed for POC testing.
-

4. C Square Consulting (Pvt.) Ltd.

- **POC Site:** Interloop Limited, Faisalabad
- **Demonstration Date:** 18th July 2025
- **Status:** Incomplete / Unsuccessful – Vendor has withdrawn from POC/Bid process

Overview:

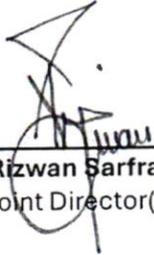
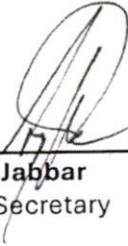
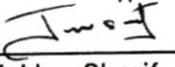
C Square deployed their prototype AI-based counting solution with basic object detection functionality. The setup was evaluated under the same real-world testing conditions as other vendors.

Strengths Observed:

- POC conducted across all defined test scenarios.
- Functional hardware installation and camera positioning.

Gaps and Limitations:

- Core AI logic underdeveloped; double-counting single bales and misidentifying other shapes.
- High error rate even under normal conditions.
- Model had been trained on a limited dataset (only one day), resulting in insufficient generalization.

			
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