Dear tshingombe,
Here is the copy of the Project Pitch with reference number : **00110596** submitted to the **Power Management (PM)** on **10/15/2025**.

1. Submitter Email

   `tshingombefiston@gmail.com`

2. Submitter First Name

   `tshingombe`

3. Submitter Last Name

   `tshitadi`

4. Submitter Phone Number

   `0725298946`

5. Company Name

   `tshingombe engineering`

6. Company Zip Code

   `10300`

7. Company State

   AK

8. Company Website

   `htpps//:www.tshingimbefiston.com`

9. SBIR/STTR topic that best fits your projects technology area

   `Power Management (PM)`

Are you eligible and interested in being considered for the NSF Fast-Track program?

`Yes`

Please proviide details of the NSF research funding relied upon to meet the eligibility requirements, including: NSF research award number(s); the proposing company personnel involved in each of the lsited research awards and their roles in the research awards; and a brief explanation of how the cited research funding relates to the proposed Fast-Track project. (up to 150 words)

Author: Tshingombe Tshitadi
Primary Title: Career Drawing Total Programming: Analysis, Design, Investigation
Secondary Title: Application Trade Discovery: Job Education Research Methodology, Operational Autodidactic Copilote Distance

Overview & Scope

This research explores the convergence of career programming, trade discovery, and autodidactic learning within a modular, signal-driven framework. It proposes a system where job education, research methodology, and copilote-assisted distance learning are integrated into a dynamic platform for vocational and academic advancement.

Key Description

• Domains: Career architecture, curriculum design, signal control, PCB implementation, vocational diagnostics
• Tools: Visual Basic logigrammes, microcontroller loops, PLC command circuits, ATM logic, curriculum dashboards
• Frameworks: AIU career center, CPD Scotland, SAQA, NATED, RNF, SCIE, trade company integration

Data Analysis

Please provide details of the customer discovery training relied upon to meet the eligibility conditions, including: a description of the customer discovery training program(s), with corresponding dates and award number(s) or other program identification details; a description of the technology in relation to which the customer discovery was undertaken, and a summary of the customer discovery findings. (Up to 250 words)

Title: Application Trade Discovery: Job Education Research Methodology, Operational Autodidactic Copilote Distance,unified system for lifelong talent development.

Key Description

• Domains: Vocational training, AIU curriculum, CPD systems, PCB implementation, microcontroller logic, and trade diagnostics
• Tools: Visual Basic logigrammes, signal registers, PLC command circuits, ATM logic, and curriculum dashboards
• Frameworks: AIU career center, CPD Scotland, SAQA, NATED, RNF, SCIE, and trade company integration

Data Analysis

• Sources: Published theses, CVs, experimental portfolios, discovery logs, and trade inventories
• Signals: Career progression (junior/senior), award validation, curriculum mapping
• Metrics: Energy output, signal classification (linear/non-linear), grid stability, skill level tracking
equations, and total cost analysis.

Credential Record Tableaux Line (Extended Format)

Date Institution / Platform Item / Module Sale Price Amendment Final Cost Award / Certificate Library Usage Booking (Type & Duration) Booking Price Notes / Integration Points
2025-10-08 Shoprite / CNA / Elektor Elektor Starter Kit R450 -R90 R360 Electronics Fundamentals 3h Sixty60 Delivery (1h) Free GitHub + SAQA/NQF dashboard

Please check the approporiate box below to indicate whether the proposing Fast-Track team will be complete at the time of the proposal submission.

Yes

10. Is this Project Pitch for a technology or project concept that was previously submitted as a full proposal by your company to the NSF SBIR/STTR Phase I Program – and was not awarded ?

No

11. Has your company received a prior NSF SBIR or STTR award?

No

12. Does your company currently have a full Phase I SBIR or STTR proposal under review at NSF?

No

13. Briefly Describe the Technology Innovation?

equations, and total cost analysis.

Credential Record Tableaux Line (Extended Format)

Date Institution / Platform Item / Module Sale Price Amendment Final Cost Award / Certificate Library Usage Booking (Type & Duration) Booking Price Notes / Integration Points

2025-10-08 Shoprite / CNA / Elektor Elektor Starter Kit R450 -R90 R360 Electronics Fundamentals 3h Sixty60 Delivery (1h) Free GitHub + SAQA/NQF dashboard

2025-10-08 GitHub Reward Model Deployment $120 -$40 $80 Contributor Badge 3h CI/CD Run (1h) Free GitHub + AGI Collaboration Record

Historiogram Equations for Behavioral Fusion

• Fusion of User Behavior: $$ F_{ui} = w_o O_{ui} + w_a A_{ui} + w_b B_{ui} $$ Where OuiO_{ui}, AuiA_{ui}, and BuiB_{ui} are order, following, and browsing counts; weights wo=1w_o = 1, wa=0.5w_a = 0.5, wb=0.5w_b = 0.5

• Cosine Similarity for User Fusion: $$ S_f(u,v) = \cos(\theta) = \frac{F_u \cdot F_v}{\|F_u\| \|F_v\|} $$

• Total Similarity Score: $$ S(u,v) = S_f(u,v) + S_{bid}(u,v) + S_{nb}(u,v) + S_{item}(u,v) $$

• Top-K Recommendation Set: $$ RS_u = \{i_1, i_2, ..., i_K\} $$ Where KK is the mean of historical orders for user uu

Total Cost Analysis Table

Category Sale Price Amendment Final Cost Booking Cost Net Cost

Starter Kit R450 -R90 R360 Free R360

Reward Deployment $120 -$40 $80 Free $80

AGI Collaboration & E-Commerce Integration

AGI in Human-Machine Collaboration

•

Credential Record Tableaux Line Format

Date Institution / Platform Item / Module Sale Price Amendment Final Cost Award / Certificate Reward Points Library Usage Booking (Type & Duration) Booking Price Notes / Integration Points

2025-10-08 CPS Institute CPS Architecture & IoT Lab R1,500 -R400 R1,100 Certificate – CPS Integration 180 pts 4h Sensor Network Workshop (2h) R300 GitHub + SAQA/NQF +

025-10-08 Blockchain Academy DLT Credentialing Module $200 -$60 $140 Certificate – Blockchain in Education 150 pts 3h Smart Contract Lab (1h) Free GitHub + ORCID Registry + SAQA/NQF

2025-10-08 GitHub AGI Fusion Engine Deployment $120 -$40 $80 Contributor Badge 100 pts 3h CI/CD Run (1h) Free GitHub + AGI Collaboration Record

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' Module: CPSDLTCredentialDashboard
Option Explicit
```

Credential Record Tableaux Line Format

Date Institution / Platform Item / Module Sale Price Amendment Final Cost Award / Certificate Reward Points Library Usage

14. Briefly Describe the Technical Objectives and Challenges?

Project-29 Overview: Modular Engineering Record Book

Field	Description
Project Title	Untitled (Project-29)
Created	24 August 2025
Last Modified	24 August 2025
Project Owner	Tshingombe
End User Company	Tshingombe Engineering
Scope	Engineering trade application (theory + practical)
Modules	BOM Manager, Activity Log, Documents, Product Configurator
Tools Referenced	Visual Basic logigramme, algorigramme, data analysis, cost tracking, award/reward ledger

Modular Components for BOM and Trade Curriculum

Product Segments

- Conveyor, HVAC, Food Depositor, Hoisting, Material Working, Pumping, Packaging
- PLC, PAC, IOs, VSD, Soft Starters, HMI Panels, Relays, Enclosures, Harmony Interfaces
- Motion Control & Robotics, Power Supplies, Software License Configurator

BOM Logic

- Add by reference number or Excel/CSV template
- Segment-based selection tools
- Total cost tracking (currently R0.00 for Project-29)

Record Book & Transcript Integration

Award & Amendment Ledger

- Projects 1–29 show a cost range from R0.00 to R400,547.09
- Amendments and rewards can be tracked using:
  - EcoStruxure Security Expert: Digital Job Book
  - Single Record Download Service
  - Transcript dashboard (12 hours completed, R0.00 cost)

Visual Basic Logic Modules

- Logigramme: Flowchart logic for BOM, training, and award tracking
- Algorigramme: Algorithmic logic for cost analysis, detection rate, and transcript amendment

Training & Curriculum Mapping

Training Module	Status	Duration
Wind Energy Fundamentals	Active	No Due Date
EcoStruxure Security Expert	Completed	97 min
Transcript Aggregate	Active	12 hrs

- Curriculum aligns with engineering trade theory + practical, security systems, and energy fundamentals
- Use transcript to manage active training and fiscal year reporting (ends 31/12/2025)

Legacy Project Ledger (Projects 1–28)

Project	Last Modified	Cost
Project-28	17/3/2025	R30,687.22
Project-25	9/3/2025	R400,547.09

Project-17 5/3/2025 R385,363.62
Project-12 17/1/2024 R119,344.00
Project-3 12/1/2024 R23,325.59
These entries can be linked to a Visual Basic-powered dashboard for cost evolution, reward tracking, and amendment history.
Would you like help generating a logigramme or algorigramme for Project-29’s BOM flow, transcript logic, or award ledger? I can also scaffold a bilingual export module for your record book.
Here's how we can scaffold this into your bilingual, audit-ready framework:
 Eaton Integration Summary: Modular Credential & SLA Tracker
 Registration & SLA Configuration
Field Value
Platform
Status Registration Pending
Form Submitted 23 Feb 2025
UPS Type BladeUPS
kVA Rating 36
Serial No. 30
Service Plan PREMIUM
Response Level 8/5 and 24/7
Cyber Monitoring Enabled
OPEX Optimization Yes (travel, labour, spare parts included)
This SLA logic can be embedded into a Visual Basic algorigramme for predictive maintenance, cost evolution, and cyber diagnostics.
 Training Completion: Eaton University
| Activity Code | ETNFRFSWHR_EL | | Workshop | F

15. Briefly Describe the Market Opportunity?

ready framework that supports:

Innovation & Discovery Record Book

Overview & Scope Statement

This record book documents:

• Curriculum-linked inventions across electrical, energy, and digital systems

• Patent claims and amendments with low-cost traceability

• Award tracking: Gold, Platinum, and institutional recognition

• System integration with Visual Basic logic, logigrammes, and schematic principles

Management System Information

• Visual Basic dashboards for module tracking

• Logigrammes for workflow mapping (e.g., fault detection, relay logic)

• Organigrammes for career progression and qualification pathways

• Audit-ready export logic for GitHub, archive.org, and institutional repositories

Deliverables & Inventory

Category Deliverable

Innovation Patent claim forms, invention descriptions

Curriculum Text box modules, schematic diagrams

Assessment Experimental scores, performance metrics

Awards Gold/Platinum certificates, cost-benefit analysis

System Logic Visual Basic code, processor frames, relay logic

Publication Research articles, AIU repository entries

Supports patent, award, and curriculum tracking Needs institutional alignment

Cross-platform (GitHub, archive.org, Excel) Initial setup may be resource-intensive

Data Analysis & Research Methods

• Visual Basic logic: ReadControlPort(), ToggleSCADASwitch(), ControlLED(), SwitchOffPin7(), CalculateZ()

• Equations:

o $Z=rg+jxdZ = rg + jxd$

o $Pmax=V24ZP_{max} = \frac{V^2}{4Z}$

o $S=VI=P+jQS = V \cdot I = P + jQ$

o $Energy=it1t2\text{Energy} = i \int_{t_1}^{t_2}$

• Curriculum comparison: Experimental score vs. module value

Syst

16. Briefly Describe the Company and Team?

align with your modular curriculum and banking automation goals:
Engineering Rural Note: Hydraulic and Energy Systems
This document blends electromechanical, metallurgical, and control system logic across rural energy applications. It includes schematic fragments, component tables, and control diagrams—ideal for modular export, credential tracking, and bilingual curriculum scaffolding.
Key Technical Domains
1. Electromechanical & Metallurgical Processes
• Mining and refining: gold, platinum, ceramic, plastic, alloy molding
• Foundry operations: pit furnace, coke ore, casting, stamping, filtering
• Component flow: jaw crusher roaster converter roll crusher separator
2. Control Logic & Circuit Design
• Sensor-driven control: microcontroller, UV, WCC, logic gates
• Boolean logic: Z = (A + B) + A + (C D)
• Resistor networks: 120, 1k, 12k, 330k; voltage levels 0.32V–5V
• Soldering temperature control unit: alarm, max load, button logic (C-1, D-1)
3. Power Distribution & Safety
• MV metering and feeder protection: circuit breakers, open points, earthing
• Thermal withstand curves: 1.05 to 1.20 nominal
• Substation architecture: 2×16000kVA, 1×1630kV, vertical plate electrode R=0.8
4. Material and Component Tables
• Cable die points, tensile force, electrical polarity
• Resistor arrays: R1–R5, 15–220
• Output logic: pin mappings, program control cylinder
Curriculum Integration Opportunities
This document is rich with modular logic f

NSF SBIR/STTR Phase I Eligibility Information:

In addition to receiving an invitation to submit a full proposal from the NSF SBIR/STTR Phase I Program based upon the review of their submitted Project Pitch,potential proposers to the program must also qualify as a small business concern to participate in the program (see SBIR/STTR Eligibility Guidefor more information).

The firm must be in compliance with the SBIR/STTR Policy Directive(s) and the Code of Federal Regulations (13 CFR 121).

- Your company must be a small business (fewer than 500 employees) located in the United States. Please note that the size limit of 500 employees includes affiliates.
- At least 50% of your company’s equity must be owned by U.S. citizens or permanent residents, and all funded work needs to take place in the United States (including work done by consultants and contractors).

- Primary employment is defined as at least 51 percent employed by the small business. NSF normally considers a full-time work week to be 40 hours and considers employment elsewhere of greater than 19.6 hours per week to be in conflict with this requirement.
- The Principal Investigator needs to commit to at least one month (173 hours) of effort to the funded project, per six months of project duration.

For more detailed information, please refer to the SBIR/STTR Eligibility Guide by using https://www.sbir.gov/sites/default/files/elig_size_compliance_guide.pdf. Please note that these requirements need to be satisfied at the time an SBIR/STTR award is made, and not necessarily when the proposal is submitted.