

**PIR MEHR ALI SHAH
ARID AGRICULTURE UNIVERSITY RAWALPINDI (PMAS-AAUR)**



**BIDDING DOCUMENTS
FOR
PROCUREMENT OF SMART SENSORS AND EQUIPMENT FOR
DDSDP PROJECT**

Pilot Project for Data Driven Smart Decision Platform for Increased
Agriculture Productivity (DDSDP)

**PMAS-AAUR,
MURREE ROAD, RAWALPINDI**

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Summary Description

Summary

Invitation for Bids

PART 1 – BIDDING PROCEDURES

Section I. Instructions to Bidders (ITB)

This Section provides information to help Bidders prepare their bids. Information is also provided on the submission, opening, and evaluation of bids and on the award of Contracts. **Section-I contains provisions that are to be used without modification.**

Section II. Bid Data Sheet (BDS)

This Section includes provisions that are specific to each procurement and that supplement Section I, Instructions to Bidders.

Section III. Evaluation and Qualification Criteria

This Section specifies the criteria to determine the lowest evaluated bid and the qualifications of the Bidder to perform the contract.

Section IV. Bidding Forms

This Section includes the forms for the Bid Submission, Price Schedules, Bid Security, and the Manufacturer's Authorization to be submitted completed by the Bidder and submitted as part of his Bid.

Section V. Eligible Countries

This Section contains information regarding eligible countries.

PART 2 – SCHEDULE OF REQUIREMENTS

Section VI. Schedule of Requirements

This Section includes the List of Services, the Delivery and Completion Schedules and the Technical Specifications that describe the Related Services to be procured.

**PROCUREMENT OF SMART SENSORS AND EQUIPMENT
FOR DDSDP PROJECT**

Project: Pilot Project for Data Driven Smart Decision Platform for Increased Agriculture Productivity (DDSDP)

Purchaser: PMAS-Arid Agriculture University Rawalpindi (PMAS-AAUR)

Country: PAKISTAN



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Pilot Project for Data Driven Smart Decision Platform for Increased Agriculture Productivity
(DDSDP)

TENDER NOTICE

Sealed bids are invited on FOR University main campus basis from reputable and well established firms/companies, having well past experience, financial position, registered with Sales Tax and Income Tax Departments for:

Procurement of Smart Sensors and Equipment for PMAS-AAUR (DDSDP)

(Detailed Bidding Documents available at purchase office)

(estimated Total Procurement size is Rs. million)

The interested bidders shall submit their bids comprise in single stage two envelop bidding procedure according to PPRA rule 38 (2a). The firms/companies are requested to submit their offers with company profile and clients list with 02% Earnest Money of the estimated price of quoted item(s) in favor of Treasurer, Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi, latest by **09-05-2022** by 14:30 hours in the office of the Directorate of Procurement & Inventory Control of the University. The tender will be opened on the same day at 15:00 hours in the same office, in the presence of those bidders who may wish to participate. Detailed specifications and bidding documents can be obtained immediately after publishing of tender notice from the office of the Directorate of Procurement & Inventory Control of the University during working hours from 0900 to 1600 hours **on cash payment of Rs.5000/- (Non Refundable)** as tender fee. The successful bidder to furnish a performance security/performance guarantee which shall not exceed 10% of contract price as per Punjab PPRA Rule 56 in the form and period specified in the Bidding Document. The rates must be quoted strictly in accordance with specifications of Bidding Documents valid for 90 days. The

conditional tender will not be accepted. **The firm/company has to submit along with tender bid an affidavit that the company is an active tax payer and not involved in litigation or black listed.** The University may reject all bids/proposals at any time prior to the acceptance of a bid or proposal as per PPRA Punjab rule 35, however upon bidder request the ground of rejection will be communicated to the concerned but no justification will be given as per PPRA rule 35 (2).

Chairman, Purchase Committee
PMAS-Arid Agriculture University,
Shamsabad, Murree Road, Rawalpindi
Tel: +92-51-9292163, 9292098

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PART 1 – Bidding Procedures

Section I. Instructions to Bidders

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Section I. Instructions to Bidders

A. General

- 1. Scope of Bid**
- 1.1 In connection with the Invitation for Bids, specified in the Bid Data Sheet (BDS), the Purchaser, as specified in the BDS, issues these Bidding Documents for the provision of Goods, Equipment, and Services incidental thereto as specified in Section VI, Schedule of Requirements.
- 1.2 Throughout these Bidding Documents:
- (a) "Authorized Representative" means any representative appointed, from time to time, by the Client, the Purchaser or the Contractor.
 - (b) "Availability and Reliability" means the probability that a equipment/ component shall be operationally ready to perform its function when called upon at any point in time.
 - (c) "Authority" means PMAS-Arid Agriculture University Rawalpindi.
 - (d) "Bidder" means the Firm/Company/Supplier/Distributors fulfilling the eligibility criteria and participating in the bidding for provision of goods and equipment as per provision of bid document/ contract.
 - (e) "Contractor" means the person/firm/company whose Tender has been accepted and awarded letter of intent followed by the Contract by the Purchaser.
 - (f) "Purchaser" means PMAS-Arid Agriculture University Rawalpindi, for the purposes of the Contract.
 - (g) "Contract" means the agreement entered into between the Purchaser and the Contractor, as recorded in the Contract Form signed by the parties, including all Schedules and Attachments thereto and all documents incorporated by reference therein.
 - (h) "Defects Liability Period" means the warranty period following the taking over, during which the Contractor is responsible for making good, defects and damages in Goods, Equipment and Services provided, under the Contract.
 - (i) "Force Majeure" means an event beyond the control of the

Contractor and not involving the Contractor's fault or negligence and not foreseeable. Such events may include, but are not restricted to, wars, revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.

- (j) "Goods" & "Equipment" means equipment, sensors, and/or other materials which the Contractor is required to supply to the Purchaser under the Contract.
- (k) "Support Services" or "Services" means installation, configuration, deployment, commissioning, testing, training, support, after sale service, etc. of Goods & Equipment and other such obligations which the Contractor is required to provide to the Purchaser under the Contract.
- (l) "Origin" shall be considered to be the place where the Goods are produced or from where the Services are provided. Goods are produced when, through manufacturing, processing or assembling of components, a commercially recognized product results that is substantially different in basic characteristics or in purpose or utility from its components. The origin of Goods, Equipment and Services is distinct from the nationality of the Contractor.
- (m) "Delivery Acceptance Certificate" means the certificate to be issued by the Client to the Contractor, in accordance with the Contract.
- (n) "Works" means work to be done by the Contractor under the Contract.
- (o) "Inventory List" means a list of equipment/ supplies bearing details of make/ model/quantity/unit price/warranty/location of supply/ installation/ manufacturer/authorized workshop, duly signed by the Contractor and verified by the Client.
- (p) the term "in writing" means communicated in written form (e.g. by mail, email, etc.) with proof of receipt;
- (q) if the context so requires, "singular" means "plural" and vice versa; and
- (r) "day" means calendar day.

- 2. Eligible Bidders** 2.1. A Bidder may be a firm that is a locally registered private entity, who itself is a Manufacturer/ Principal or an authorized representative of a Manufacturer/ Principal or any combination of such entities in the form of a Joint Venture (JV) or consortium under an existing

agreement or with the intent to enter into such an agreement supported by a letter of intent. In the case of a Joint Venture or Consortium, all members shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms. The JV/ Consortium shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the members of the JV/ Consortium during the bidding process and, in the event the JV/ Consortium is awarded the Contract, during contract execution. Unless specified in the BDS, there is no limit on the number of members in a JV/ Consortium.

- 2.2. A Bidder shall not have a conflict of interest. Any Bidder found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest for the purpose of this bidding process, if the Bidder:
- (a) directly or indirectly controls, is controlled by or is under common control with another Bidder; or
 - (b) receives or has received any direct or indirect subsidy from another Bidder; or
 - (c) has the same legal representative as another Bidder; or
 - (d) participates in more than one bid in this bidding process. Participation by a bidder in more than one bid will result in the disqualification of all bids in which such bidder is involved; or
 - (e) any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the bid; or
 - (f) any of its affiliates has been hired (or is proposed to be hired) by the Purchaser for the contract implementation; or
 - (g) has a close business or family relationship with a professional staff of the Purchaser who: (i) are directly or indirectly involved in the preparation of the bidding documents or specifications of the contract, and/or the bid evaluation process of such contract; or (ii) would be involved in the implementation or supervision of such contract.
- 2.3. A Bidder shall not be eligible to participate if under suspension from bidding by the Purchaser as the result of previous contract or blacklisted by organizations **specified in the BDS**.

- 2.4. A bidder shall provide such evidence of eligibility satisfactory to the Purchaser, as the Purchaser shall reasonably request.
- 3. Eligible Goods, Equipment and Related Services**
- 3.1 All the Goods, Equipment and Services to be delivered under the contract and financed by the Purchaser may have their origin in any country in accordance with Section V, Eligible Countries.
- 3.2 For purposes of this Clause, the term “goods”, “equipment” and “services” includes as specified in the Schedule of Requirements.
- 3.3 The term “origin” means the country where the Goods, Equipment and Services have been grown, cultivated, produced, performed, manufactured or processed.

B. Contents of Bidding Document

- 4. Sections of Bidding Document**
- 4.1. The Bidding Documents consist of Parts 1 and 2, which include all the Sections indicated below, and should be read in conjunction with any Addenda issued in accordance with ITB 6.

PART 1 Bidding Procedures

- Section I. Instructions to Bidders (ITB)
- Section II. Bidding Data Sheet (BDS)
- Section III. Evaluation and Qualification Criteria
- Section IV. Bidding Forms
- Section V. Eligible Countries

PART 2 Schedule of Requirements

- Section VI. Schedule of Requirements
- 4.2. The Invitation for Bids/ Tender Notice issued by the Purchaser is not part of the Bidding Document.
- 4.3. Unless obtained directly from the Purchaser **as specified in BDS**, the Purchaser is not responsible for the completeness of the document, responses to requests for clarification, the Minutes of the pre-Bid meeting (if any), or Addenda to the Bidding Document in accordance with ITB 6. In case of any contradiction, documents obtained directly from the Purchaser shall prevail.
- 4.4. The bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Documents and to furnish with

its Bid all information or documentation as is required by the Bidding Documents.

- 5. Clarification of Bidding Documents** 5.1 A bidder requiring any clarification of the Bidding Document shall contact the Purchaser in writing at the Purchaser's address **specified in the BDS**. The Purchaser will respond in writing to any request for clarification, provided that such request is received prior to the deadline for submission of request for clarification within a period **specified in the BDS**. The Purchaser shall forward copies of its response to all Bidders who have acquired the Bidding Documents in accordance with ITB 4.3, including a description of the inquiry but without identifying its source. Should the clarification result in changes to the essential elements of the Bidding Documents, the Purchaser shall amend the Bidding Documents following the procedure under ITB 6 and ITB 20.2.
- 6. Amendment of Bidding Document** 6.1 At any time prior to the deadline for submission of bids, the Purchaser may for any reason, whether at its own initiative or in response to a clarification requested by bidders, amend the Bidding Documents by issuing addenda.
- 6.2 Any addendum issued shall be part of the Bidding Documents and shall be communicated in writing to all who have obtained the Bidding Documents from the Purchaser in accordance with ITB 4.3.
- 6.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their bids, the Purchaser may, at its discretion, extend the deadline for the submission of bids, pursuant to ITB 20.2.

C. Preparation of Bids

- 7. Cost of Bidding** 7.1 The Bidder shall bear all costs associated with the preparation and submission of its bid, and the Purchaser shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.
- 8. Language of Bid** 8.1 The Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser, shall be written in the language **specified in the BDS**. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages into the language **specified in the BDS**, in which case, for purposes of interpretation of the bid, such translation shall govern.

- 9. Documents Comprising the Bid**
- 9.1 The bid shall comprise the following:
- (a) letter of bid in accordance with ITB 10;
 - (b) completed schedules, in accordance with ITB 10 and 12
 - (c) bid security, in accordance with ITB 17.1;
 - (d) written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 18.2;
 - (e) documentary evidence in accordance with ITB 15 establishing the Bidder's qualifications to perform the contract if its bid is accepted;
 - (f) documentary evidence in accordance with ITB 15 establishing the Bidder's eligibility to bid;
 - (g) documentary evidence in accordance with ITB 14, that the Goods, Equipment and Services to be provided by the bidder are of eligible origin;
 - (h) documentary evidence in accordance with ITB 14 and 28, that the Goods, Equipment and Services conform to the Bidding Documents;
 - (i) any other document **required in the BDS**.
- 9.2 In addition to the requirements under ITB 9.1, bids submitted by a JV/ Consortium shall include a copy of the Joint Venture Agreement/ Consortium Letter entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement/ Consortium in the event of a successful bid shall be signed by all members and submitted with the bid, together with a copy of the proposed Agreement.
- 9.3 The Bidder shall furnish in the Letter of Bid information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this bid.
- 10. Letter of Bid and Price Schedules**
- 10.1 The Letter of Bid and Price Schedules shall be prepared using the relevant forms furnished in Section IV, Bidding Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITB 18.2. All blank spaces shall be filled in with the information requested.
- 11. Alternative Bids**
- 11.1 Unless otherwise **specified in the BDS**, alternative bids shall not be considered.

- 12. Bid Prices and Discounts**
- 12.1 The prices and discounts quoted by the Bidder in the Letter of Bid and in the Price Schedules shall conform to the requirements specified below.
- 12.2 All Goods, Equipment and Services must be listed and priced as per Price Schedules given in Section IV-Bidding Forms.
- 12.3 The price to be quoted in the Letter of Bid in accordance with ITB 10.1 shall be the total price of the bid, excluding any discounts offered.
- 12.4 The Bidder shall quote any discounts and indicate the methodology for their application in the Letter of Bid, in accordance with ITB 10.1.
- 12.5 Prices quoted by the Bidder shall be fixed during the Bidder's performance of the Contract and not subject to variation on any account, **unless otherwise specified in the BDS.**
- 12.6 Bids are invited for *any one or any combination of items* mentioned in the Bidding Document. ***Unless as specified in BDS, prices quoted shall correspond to 100% of the quantities specified for each item.*** Prices shall be quoted as specified in Price Schedule included in Section IV: Bidding Forms. The disaggregation of price components is required solely for the purpose of facilitating the comparison of bids by the Purchaser. This shall not in any way limit the Purchaser's right to contract on any of the terms offered. In quoting prices, the Bidder shall be free to use transportation through carriers registered in any eligible country, in accordance with Section V, Eligible Countries. Similarly, the Bidder may obtain insurance services from any eligible country in accordance with Section V, Eligible Countries for Services rendered in the Purchaser's Country.
- (i) the price of the Goods, Equipment & Services shall be quoted including GST/PST on the provision of such Goods & Equipment.
 - (ii) the price for inland transportation, insurance, and other local services required to convey the goods & equipment to their final destination as **specified in the BDS.**
- 13. Currencies of Bid and Payment**
- 13.1 The currency of the bid and the currency of payments shall be as **specified in the BDS.** The bidder shall quote in the currency of the Purchaser's Country, unless otherwise **specified in the BDS.**
- 14. Documents Establishing the**
- 14.1 To establish the eligibility of the Goods, Equipment and Services in accordance with ITB 3, bidders shall complete the country of

- Eligibility and Conformity of the Services & Products**
- origin declarations in the Price Schedule Forms, included in Section IV: Bidding Forms.
- 14.2 To establish the conformity of the Goods, Equipment and Services to the Bidding Documents, the Bidder shall furnish as part of its Bid the documentary evidence that the Goods, Equipment and Services conform to the specifications and standards specified in Section VI: Schedule of Requirements.
- 14.3 The Bidder shall also furnish a list giving full particulars, including available sources and current prices of spare parts, special tools, etc., necessary for the proper and continuing functioning of the delivered Goods & Equipment during the period **specified in the BDS** following commencement of the use of the delivered goods and equipment by the Purchaser.
- 14.4 Standards for workmanship, process, material, and equipment, as well as references to brand names or catalogue numbers specified by the Purchaser in the Schedule of Requirements, are intended to be descriptive only and not restrictive. The Bidder may offer other standards of quality, brand names, and/or catalogue numbers, provided that it demonstrates, to the Purchaser's satisfaction, that the substitutions ensure substantial equivalence or are superior to those specified in the Section VI, Schedule of Requirements.
- 15. Documents Establishing the Eligibility and Qualifications of the Bidder**
- 15.1 To establish Bidder's eligibility in accordance with ITB 2, Bidders shall complete the Letter of Bid, included in Section IV, Bidding Forms.
- 15.2 The documentary evidence of the Bidder's qualifications to perform the contract if its bid is accepted shall establish to the Purchaser's satisfaction:
- (a) that, if **required in the BDS**, a Bidder that does not manufacture or produce the Goods or Equipment it offers to supply shall submit the Manufacturer's/ Principal's Authorization using the form included in Section IV, Bidding Forms to demonstrate that it has been duly authorized by the manufacturer or producer of the Goods/ Equipment to supply these Goods/ Equipment on behalf of Manufacturer/ Principal to the Purchaser.
 - (b) that the Bidder and its Manufacturer/ Principal meets each of the qualification criterion specified in Section III, Evaluation and Qualification Criteria.
- 16. Period of Validity of Bids**
- 16.1 Bids shall remain valid for the period **specified in the BDS** after the bid submission deadline date prescribed by the Purchaser in

accordance with ITB 20.1. A bid valid for a shorter period shall be rejected by the Purchaser as non-responsive.

- 16.2 In exceptional circumstances, prior to the expiration of the bid validity period, the Purchaser may request bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. If a Bid Security is requested in accordance with ITB Clause 17, it shall also be extended for a corresponding period. A Bidder may refuse the request without forfeiting its Bid Security. A Bidder granting the request shall not be required or permitted to modify its bid, except as provided in ITB 16.3.
- 16.3 If the award is delayed by a period exceeding 30 days beyond the expiry of the initial bid validity, the Contract price shall be determined as follows:
- (a) In the case of fixed price contracts, the contract price shall be the bid price adjusted by the factor **specified in the BDS**.
 - (b) In the case of adjustable price contracts, no adjustment shall be made.
 - (c) In any case, bid evaluation shall be based on the bid price without taking into consideration the applicable correction from those indicated above.

17. Bid Security

- 17.1 The bidder shall furnish as part of its bid, a bid security, as **specified in the BDS**, in original form in the amount and currency **specified in the BDS**.
- 17.2 If a bid security is specified pursuant to ITB 17.1, the bid security shall be a demand guarantee in any of the following forms at the Bidder's option:
- (a) an unconditional guarantee issued by any Scheduled Bank in Pakistan in the;
 - (b) CDR/ Pay Order in the name of Treasurer, PMAS-AAUR.
- 17.3 If a Bid Security is specified pursuant to ITB 17.1, any bid not accompanied by a substantially responsive Bid Security shall be rejected by the Purchaser as non-responsive.
- 17.4 If a Bid Security is specified pursuant to ITB 17.1, the Bid Security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's signing the contract and furnishing the Performance Security pursuant to ITB 39.

- 17.5 The Bid Security of the successful Bidder shall be returned as promptly as possible once the successful Bidder has signed the contract and furnished the required performance security.
- 17.6 The Bid Security may be forfeited:
- (a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid, or any extension thereto provided by the Bidder; or
 - (b) if the successful Bidder fails to:
 - (i) sign the Contract in accordance with ITB 38; or
 - (ii) furnish a performance security in accordance with ITB 39.
- 17.7 The Bid Security of a JV must be in the name of the JV that submits the bid. If the JV has not been legally constituted into a legally enforceable JV at the time of bidding, the bid security shall be in the names of all future members as named in the letter of intent referred to in ITB 2.1 and ITB 9.2.

18. Format and Signing of Bid

- 18.1 The Bidder shall prepare one original of the documents comprising the bid as described in ITB 9 and clearly mark it "ORIGINAL.". In addition, the Bidder shall submit copies of the bid, in the number **specified in the BDS** and clearly mark them "COPY." In the event of any discrepancy between the original and the copies, the original shall prevail.
- 18.2 The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation **as specified in the BDS** and shall be attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the bid where entries or amendments have been made shall be signed or initialed by the person signing the bid.
- 18.3 In case the Bidder is a JV, the Bid shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives.
- 18.4 Any inter-lineation, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the bid.

D. Submission and Opening of Bids

- 19. Sealing and Marking of Bids**
- 19.1 The Bidder shall enclose the original and all copies of the bid, in separate sealed envelopes, duly marking the envelopes as “ORIGINAL”, and “COPY.” These envelopes containing the original and the copies shall then be enclosed in one single envelope/ package.
- 19.2 The inner and outer envelopes/ packages shall:
- (a) bear the name and address of the Bidder;
 - (b) be addressed to the Purchaser in accordance with ITB 22.1;
 - (c) bear the specific identification of this bidding process indicated in ITB 1.1; and
 - (d) bear a warning not to open before the time and date for bid opening.
- 19.3 If all envelopes are not sealed and marked as required, the Purchaser will assume no responsibility for the misplacement or premature opening of the bid.
- 20. Deadline for Submission of Bids**
- 20.1 Bids must be received by the Purchaser at the address and no later than the date and time **as specified in the BDS** through registered post or in person. In case of registered post, it is the responsibility of Bidder to assure the timely delivery of bid. Any bid received by the Purchaser after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder.
- 20.2 The Purchaser may, as per Punjab PPRA Rules, extend the deadline for the submission of bids by amending the Bidding Documents in accordance with ITB 6, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.
- 21. Late Bids**
- 21.1 The Purchaser shall not consider any bid that arrives after the deadline for submission of bids, in accordance with ITB 20. Any bid received by the Purchaser after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder.
- 22. Withdrawal, Substitution, and Modification of Bids**
- 22.1 A Bidder may withdraw, substitute, or modify its Bid after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization (the power of attorney) in accordance with ITB 18.2, (except that withdrawal notices do not require copies). The corresponding substitution or modification of the bid must accompany the respective written notice. All notices must be:

- (a) prepared and submitted in accordance with ITB 18 and 19 (except that withdrawal notices do not require copies), and in addition, the respective envelopes shall be clearly marked “WITHDRAWAL,” “SUBSTITUTION,” or “MODIFICATION;” and
- (b) received by the Purchaser prior to the deadline prescribed for submission of bids, in accordance with ITB 20.

22.2 Bids requested to be withdrawn in accordance with ITB 22.1 shall be returned unopened to the Bidders.

22.3 No bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Letter of Bid or any extension thereof.

23. Bid Opening

23.1 Except as in the cases specified in ITB 21 and 22, the Purchaser shall publicly open and read out in accordance with ITB 23.3 all bids received by the deadline at the date, time and place **specified in the BDS** in the presence of Bidders’ designated representatives who choose to attend.

23.2 First, envelopes marked “WITHDRAWAL” shall be opened and read out and the envelope with the corresponding bid shall not be opened, but returned to the Bidder. If the withdrawal envelope does not contain a copy of the “power of attorney” confirming the signature as a person duly authorized to sign on behalf of the Bidder, the corresponding bid will be opened. No bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at bid opening. Next, envelopes marked “SUBSTITUTION” shall be opened and read out and exchanged with the corresponding Bid being substituted, and the substituted Bid shall not be opened, but returned to the Bidder. No Bid substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at bid opening. Envelopes marked “MODIFICATION” shall be opened and read out with the corresponding Bid. No Bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at Bid opening. Only bids that are opened and read out at Bid opening shall be considered further.

23.3 The Purchaser shall prepare a record of the bid opening that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, or modification. The Bidders’ representatives who are present shall be requested to sign the

record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record.

E. Evaluation and Comparison of Bids

- 24. Confidentiality**
- 24.1 Any effort by a Bidder to influence the Purchaser in the evaluation or contract award decisions may result in the rejection of its Bid.
- 24.2 Notwithstanding ITB 24.1, from the time of bid opening to the time of Contract Award, if any Bidder wishes to contact the Purchaser on any matter related to the bidding process, it should do so in writing.
- 25. Clarification of Bids**
- 25.1 To assist in the examination, evaluation, comparison of the bids, and qualification of the Bidders, the Purchaser may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder in respect to its Bid and that is not in response to a request by the Purchaser shall not be considered. The Purchaser's request for clarification and the response shall be in writing. No change, including any voluntary increase or decrease, in the prices or substance of the Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Purchaser in the Evaluation of the bids, in accordance with ITB 29.
- 25.2 If a Bidder does not provide clarifications of its bid by the date and time set in the Purchaser's request for clarification, its bid may be rejected.
- 26. Deviations, Reservations, and Omissions**
- 26.1 During the evaluation of bids, the following definitions apply:
- (a) "Deviation" is a departure from the requirements specified in the Bidding Documents;
- (b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Documents; and
- (c) "Omission" is the failure to submit part or all of the information or documentation required in the Bidding Documents
- 27. Determination of Responsiveness**
- 27.1 The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself, as defined in ITB 9.
- 27.2 A substantially responsive Bid is one that meets the requirements of the Bidding Documents without material deviation, reservation,

or omission. A material deviation, reservation, or omission is one that:

- (a) if accepted, would
 - (i) affect in any substantial way the scope, quality, or performance of the Goods, Equipment and Services specified in the Contract; or
 - (ii) limit in any substantial way, inconsistent with the Bidding Documents, the Purchaser's rights or the Bidder's obligations under the Contract; or
- (b) if rectified, would unfairly affect the competitive position of other bidders presenting substantially responsive bids.

27.3 The Purchaser shall examine the technical aspects of the bid submitted in accordance with ITB 14 and ITB 15, in particular, to confirm that all requirements of Section VI, Schedule of Requirements have been met without any material deviation or reservation, or omission.

27.4 If a bid is not substantially responsive to the requirements of Bidding Documents, it shall be rejected by the Purchaser and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.

28. Non-conformities, Errors and Omissions

28.1 Provided that a bid is substantially responsive, the Purchaser may waive any non-conformities in the Bid.

28.2 Provided that a bid is substantially responsive, the Purchaser may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the bid related to documentation requirements. Such omission shall not be related to any aspect of the price of the Bid. Failure of the bidder to comply with the request may result in the rejection of its bid.

28.3 Provided that a bid is substantially responsive, the Purchaser shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component.

29. Correction of Arithmetical Errors

29.1 Provided that the Bid is substantially responsive, the Purchaser shall correct arithmetical errors on the following basis:

- (a) if there is a discrepancy between the unit price and the line item total that is obtained by multiplying the unit price by the quantity, the unit price shall prevail and the line item

total shall be corrected, unless in the opinion of the Purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the line item total as quoted shall govern and the unit price shall be corrected;

- (b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
- (c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

29.2 Bidders shall be requested to accept correction of arithmetical errors. Failure to accept the correction in accordance with ITB 29.1, shall result in the rejection of the Bid.

30. Margin of Preference of 30.1 **Unless otherwise specified in the BDS**, a margin of preference shall not apply.

31. Evaluation of Bids of 31.1 The Purchaser shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.

31.2 To evaluate a bid, the Purchaser shall consider the following:

- (a) evaluation will be done for each *Item separately mentioned in the scope of Goods, Equipment and Services*, as **specified in the BDS**; and the Bid Price as quoted in accordance with ITB 12;
- (b) price adjustment for correction of arithmetic errors in accordance with ITB 29.1;
- (c) evaluation factors are specified in Section III, Evaluation and Qualification Criteria;

32. Comparison of Bids of 32.1 The Purchaser shall compare the evaluated prices of all substantially responsive bids established in accordance with ITB 33.2 to determine the highest scoring evaluated bid.

33. Qualification of the Bidder of 33.1 The Purchaser shall determine to its satisfaction whether the Bidder that is selected as having submitted the highest scoring evaluated and substantially responsive bid meets the qualifying criteria specified in Section III, Evaluation and Qualification Criteria.

- 33.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB 15.
- 34. Purchaser's Right to Accept Any Bid, and to Reject Any or All Bids** 34.1 The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to contract award, without thereby incurring any liability to Bidders according to PPRA Rule 35. In case of annulment, all bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.

F. Award of Contract

- 35. Award Criteria** 35.1 Subject to ITB 34.1, the Purchaser shall award the contract to the bidder whose bid has been determined to be the highest scoring evaluated bid and is substantially responsive to the bidding documents, provided further that the bidder is determined to be qualified to perform the contract satisfactorily.
- 36. Purchaser's Right to Vary Quantities at Time of Award** 36.1 At the time of contract is awarded, the Purchaser reserves the right to increase or decrease the quantity of Goods, Equipment and Services originally specified in Section VI, Schedule of Requirements, provided this does not exceed the percentages **specified in the BDS**, and without any change in the unit prices or other terms and conditions of the bid and the Bidding Documents.
- 37. Notification of Award** 37.1 Prior to the expiration of the period of bid validity, the Purchaser shall notify the successful Bidder, in writing, that its Bid has been accepted. The notification letter called the "Letter of Acceptance" shall specify the sum that the Purchaser will pay the Supplier in consideration of providing the Goods, Equipment and Services.
- 37.2 Until a formal contract is prepared and executed, the notification of award shall constitute a binding contract.
- 38. Signing of Contract** 38.1 Promptly after notification, the Purchaser shall send the successful Bidder the Contract Agreement.
- 38.2 Within fifteen (15) days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Purchaser **as specified in the BDS**.
- 38.3 Notwithstanding ITB 38.2 above, in case signing of the Contract Agreement is prevented by any export restrictions attributable to the Purchaser, to the country of the Purchaser, or to the use of the products/goods, systems or services to be supplied, where such export restrictions arise from trade regulations from a country supplying those products/goods, systems or services, the Bidder shall

not be bound by its bid, always provided however, that the Bidder can demonstrate to the satisfaction of the Purchaser that signing of the Contract Agreement has not been prevented by any lack of diligence on the part of the bidder in completing any formalities, including applying for permits, authorizations and licenses necessary for the export of the products/goods, systems or services under the terms of the contract.

39. Performance Security/ Performance Guarantee

39.1 Within fifteen (15) days of the receipt of notification of award from the Purchaser, the successful Bidder, if required, shall furnish, **as specified in the BDS**, the Performance Security/ Performance Guarantee (as per Clause 2(w) and Clause 56 of Punjab PPRA Rules) using the Performance Security Form included in Section IV, Bidding Forms, **OR** in another form acceptable to the Purchaser as mentioned in ITB 39.3.

39.2 Failure of the successful Bidder to submit the above-mentioned Performance Security/ Performance Guarantee or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security. In that event the Purchaser may award the contract to the next highest scoring evaluated Bidder, whose bid is substantially responsive and is determined by the Purchaser to be qualified to perform the contract satisfactorily.

39.3 In lieu of provision at ITB 39.1 above, the Purchaser can retain an amount as performance security/ performance guarantee from payment of every installment made to the contractor according to PPRA Rules and **as specified in BDS**.

40. Payment Terms

40.1 Subject to ITB 38 and ITB 39, the payments will be made subsequent to fulfillment of codal formalities.

Payment Terms and Schedule will, however, be finalized at the time of signing the Contract Agreement.

41. Warranty

41.1 **Warranty as per standard.** The Supplier shall, in addition, comply with the guarantees associated with the performance and/or conformance specifications specified under the Contract. If, for reasons attributable to the Supplier, these guarantees are not attained in whole or in part, the Supplier shall, at its discretion, either:

- (a) make such changes, modifications, and/or additions to the Goods or any part thereof as may be necessary in order to attain the contractual guarantees specified in the Contract at its own cost and expense and to carry out further performance / conformance tests in accordance with Clause 7,

or

- (b) pay liquidated damages to the Purchaser with respect to the failure to meet the contractual guarantees. The rate of these liquidated damages shall be 1% per week up to a maximum of 06% of the total Contract price.

Section II. Bid Data Sheet (BDS)

The following specific data for the goods to be procured shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITB). Whenever there is a conflict, the provisions herein shall prevail over those in ITB.

ITB Clause A. General Reference

- ITB 1.1 The Purchaser is PMAS-AAUR represented by:
Chairman Purchase Committee, PMAS-AAUR.
- ITB 1.1 **Procurement Of Smart Sensors and Equipment for DDS DP Project**
- ITB 2.3 Any company/ firm blacklisted by Federal or Provincial government or public sector enterprises are barred from participating in this Bid.
- ITB 4.3 The Bidding Document should be procured directly by depositing PKR 3,000/- (non-refundable) in cash from the address below:

**Directorate of Procurement & Inventory Control,
PMAS-Arid Agriculture University, Shamsabad, Murree Road,
Rawalpindi, Pakistan**

B. Contents of Bidding Documents

- ITB 5.1 For **Clarification of bid purposes** only, Bidders should send their request for clarifications regarding bids in writing through **email or hand-delivered** before 4:00pm on **05-05-2022** at the following address:

The Purchaser's address for clarification purposes is:

**Project Director (DDSDP),
Faculty of Crop and Food Sciences,
PMAS-Arid Agriculture University, Shamsabad, Murree Road,
Rawalpindi, Pakistan
Telephone: +92-051-9292098
Facsimile number: +92-051-9292107
Electronic mail address: naveed@uair.edu.pk**

Clarifications of only written requests received in time will be responded by the Purchaser.

C. Preparation of Bids

- ITB 8.1** The language of the bid is **English**.
All correspondence exchange shall be in English language.
Language for translation of supporting documents and printed literature is English.
- ITB 9.1(i)** The Bidder shall submit the following additional documents with its bid:
1. The literature, catalogues/brochures and related documents of Goods, Equipment and Services including details of specifications, operating conditions, features, etc.
 2. Compliance Data Sheet/ Checklist.
- ITB 11.1** Alternative Bids shall not be considered.
- ITB 12.5** The prices quoted by the Bidder shall not be subject to adjustment during the performance of the Contract.
- ITB 12.6** Prices quoted for contract shall correspond *separately for each Item (i.e., Goods/ Equipment)* mentioned in the Schedule of Requirements.
- ITB 12.6(ii)** The Goods, Equipment and Services shall be delivered at the PMAS-AAUR (*Project Site*), Rawalpindi.
- ITB 13.1** The prices shall be quoted by the bidder in: PKR.
- ITB 15.2 (a)** Manufacturer's/ Principal's Authorization is required.
- ITB 16.1** The bid validity period shall be 90 days.
- ITB 16.3 (a)** The bid price adjustment factor shall not be applicable
- ITB 17.1** A Bid Security shall be required.
The amount of the bid security shall be Two percent (02%) of estimated price of item(s) quoted in the form of deposit at call in favor of Treasurer, PMAS-AAUR and in currency specified in BDS for Clause ITB 13.1.
- ITB 17.2 (a)** The Bid Security shall be in the form of Bank Guarantee issued by a Scheduled Bank in Pakistan
- ITB 17.2 (b)** Pay Order or Call Deposit Receipt (CDR) in the name of Treasurer, PMAS-AAUR
- ITB 18.1** In addition to the original of the bid, the number of copies is One (01).
- ITB 18.2** The written confirmation of authorization to sign on behalf of the bidder shall consist of written Power of Attorney attached to the Bid.

D. Submission and Opening of Bids

- ITB 20.1** For **bid submission purposes** only, the Purchaser's address is:
- Chairman Purchase Committee,
PMAS-Arid Agriculture University Rawalpindi, Shamsabad,
Murree Road, Rawalpindi, Pakistan.**
- The deadline for bid submission is mentioned, as follows:**
Submission Date: 09 May, 2022
Submission Time: On or Before **14:30 Hours**
- Bidders "***shall not***" have the option of submitting their bids electronically.
- ITB 23.1** The technical bid opening shall take place at :
- Directorate of Procurement & Inventory Control,
PMAS-Arid Agriculture University Rawalpindi, Shamsabad,
Murree Road, Rawalpindi, Pakistan.**
- Date: 09 May, 2022
Time: **15:00 Hours**
- The financial bid opening shall take place for only those bidders who qualify technical evaluation. The Purchaser shall communicate the date, time and venue to the qualifying bidders at an appropriate time subsequent to completion of technical evaluation process.
- ITB 23.2** The Letter of Bid and Price Schedules shall be initialed by the committee representatives of the Purchaser conducting bid opening.

E. Evaluation and Comparison of Bids

- ITB 30.1** A margin of domestic preference shall not apply.
- ITB 31.2(a)** Evaluation will be done for *each item separately mentioned in Schedule of Requirements.*

F. Award of Contract

- ITB 36.1** The maximum percentage by which contract goods, equipment and services may be increased or decreased is NIL.
- ITB 38.2** The successful bidder shall sign, date and return the Contract Agreement made on stamp paper having a stamp duty of an amount as per government rules. The stamp duty shall be paid by the successful bidder.

ITB 39.1 Performance Guarantee/ Performance Security in the form of Bank Guarantee shall be furnished by the successful bidder amounting to 10% of the Contract value.

ITB39.3 Instead of submission of Bank Guarantee as Performance Security/ Performance Guarantee by the successful Bidder, both parties (i.e., purchaser and successful bidder) can mutually agree that the Purchaser can retain an amount of 10% as Performance Security/ Performance Guarantee from payment of every installment made to the Contractor as per Punjab PPRA Rules. The aggregate amount so deducted shall be paid to the Contractor after satisfactory completion of all obligations under the contract within 30 days of issuance of Letter of Completion of Contractual Obligations.

Section III.

Evaluation and Qualification Criteria

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1. Bidding Process

Single stage two envelopes bidding process will be adopted where bids will be selected for each item separately under Quality and Cost Based Selection (QCBS) System and procedures described in this Bid Document, in accordance with the PPRA Rules.

The bidding process will involve the steps along with timelines as mentioned in Bid Data Sheet.

1. To enable bidder to prepare the proposal, a list of attached document formats have been provided in Section-IV-Bidding Forms.
2. Any request for clarification should be initiated in writing and addressed as mentioned in ITB and specified in BDS.
3. At any time before the submission of proposals, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by any bidder, modify the documents by amendment. The clarification on bids or any amendments of the bid will be intimated to all Bidders listed with the Purchaser for this Bid in writing. The Purchaser may as per Punjab PPRA Rules extend the deadline for the submission of proposals as mentioned in ITB.

2. Bidding Procedure for Evaluation of Bids

The bid submitted by the Bidder will be evaluated as per the following procedure:

1. First level of technical evaluation will be based on mandatory criteria. Only those firms who fulfill mandatory criteria will qualify for next round of technical evaluation.
2. Second level of evaluation of the Technical Bids will be conducted on the basis of Technical Proposal, which will include compliance to specifications of the required solution and other factors mentioned in this bid document.
3. Bids for only those firms who qualify/ pass technical evaluation will be opened for financial evaluation.

(i) Procedure for opening of Bids

Single stage two envelopes, procedure would be adopted for opening of bids. The detailed procedure and terms are as follows:

- a) The bid shall comprise a single package containing two separate envelopes. Each envelope shall contain separately the Financial Proposal and the Technical Proposal;

- b) The envelopes shall be marked as “FINANCIAL PROPOSAL” and “TECHNICAL PROPOSAL” in bold and legible letters to avoid confusion;
- c) Initially, only the envelope marked “TECHNICAL PROPOSAL” shall be opened in front of the Purchase Committee members and representatives of bidders, who wish to attend the opening of technical bids;
- d) The Technical Proposals shall be evaluated separately for each item for compliance to technical requirement of this document, without reference to the price and reject any quoted item in proposal which does not conform to the specified requirements as listed in said Sections of this Bid Document.
- e) The envelope marked as “FINANCIAL PROPOSAL” shall be opened in front of Purchase Committee members and the representatives of qualified bidders after the technical evaluation who have scored at least 70% aggregate marks in the second stage of technical evaluation;
 - **PROVISO:** Provided that if NONE or ONLY ONE (single) bidder exceeds the 70% pass mark, then the Purchaser SHALL decrease the mandatory requirements’ Pass Mark limit to 60%. In other words, if TWO or more bidders exceed 70%, then the Pass Mark will NOT be decreased to 60%.
 - If Pass Marks are decreased to 60%, then ALL bidders with scores greater than or equal to 60% shall be considered as qualified for Financial Evaluation.
- f) The Financial Proposal of bids found technically nonresponsive or unqualified shall be returned un-opened to the respective bidders;
- g) The opened financial proposals will be evaluated separately for each quoted item and amount totals will be checked/ verified for correctness as well as other compliance requirements will be checked.
- h) For each quoted item separately, the technical and financial evaluation scores will be added with a weightage of 70% for technical score and 30% for financial score. The total evaluation score will be calculated as per the formula given under “Formula for Total Evaluation Score Calculation”.
- i) The quoted item(s) scoring the highest total evaluation score and compliant in all respects will be considered for the award of procurement order.

3. Evaluation Procedure & Criteria

(i) Technical Evaluation

There would be a two-stage technical evaluation; Stage-1 technical evaluation of technical bids will be done as per information tabulated under the “Stage-1: List of Mandatory Documents”. Detailed technical evaluation of those firms would be performed which would qualify the above tabulated mandatory technical evaluation criteria. The Stage-2 detailed technical evaluation would then be performed by the Purchase Committee as per the scoring criteria laid out under “Stage-2: Detailed Technical Evaluation Scoring Criteria”.

Stage-1: List of Mandatory Documents for Eligibility.

Technical Bids must have the following documents attached to be considered as eligible for further technical evaluation:

S #.	Mandatory Documents Criteria	Documents
BIDDER INFORMATION		
1	Company/Firm must be in operation minimum for 3 years. In case of JV, the lead bidder should be in operation minimum for 3 years.	Valid certificate/ document from concerned regulator/ authority. In case of JV, valid registration certificates/ documents of all local companies from concerned regulator/ authority.
2	If the applicant is a JV/ consortium of firms, there must be a leading firm appointed through a letter of association executed by all other JV/ consortium members.	Letter of association executed by all JV/ consortium members
3	<u>AUTHORIZATION</u> Bidder must be Principal/ Manufacturer or authorized distributor or authorized dealer/ agent of the Principal/ Manufacturer.	Authorization certificate of Principal/ Manufacturer
4	<u>LOCAL OFFICE</u> Bidder should have fully operational office/ Head office in Islamabad/Rawalpindi.	
5	<u>BLACKLIST UNDERTAKING</u> Affidavit, on Rs.100/- judicial stamp paper, that Bidding firm is not Blacklisted and involved in any active litigation against Pakistan anywhere.	Affidavit In case of JV, this condition is applicable on all members firms of the JV.

TAX REGISTRATION		
6	Registration of NTN with Federal Board of Revenue (FBR) and having Active Tax Payer status.	Valid NTN with Federal Board of Revenue (FBR), In case of JV, all local firms should have Valid NTN with FBR
7	Registration of General Sales Tax (GST)/ Provincial Sales Tax (PST) with relevant revenue authority(ies) and having Active Tax Payer status.	Valid STN registration with Punjab Revenue Authority for GST/PST and having Active Tax Payer status and Acknowledgement Receipt of latest submitted Tax Return.
8	Active Taxpayer List (ATL) Status	Active Tax Payer status and Acknowledgement Receipt of latest submitted Tax Return. In case of JV, all local firms should have Active Tax Payer status and Acknowledgement Receipt of latest submitted Tax Return.
BIDDER CAPABILITY		
9	Similar completed procurements of quoted goods/ equipment for the last five years	List of Clients
10	<u>FINANCIAL SOUNDNESS</u> Average annual turnover for the last 2 years of Bidding Firm is Min. PKR 10 Million / yr	Attach acceptable proof like Audited Financial Statements or Bank Statement, etc.
11	<u>PROFESSIONAL RESOURCES</u> Local bidder must have mix of professional staff in relevant field to provide services during active period of Contract.	Team List with relevant qualifications/ experience.
12	<u>SERVICE FACILITIES</u> Technical capabilities and facility to provide services during active period of Contract	Workshop/ Maintenance Facility.
COMPLIANCE DATA SHEET		
13	Compliance Data sheet/ Checklist shall be provided in the format specified in Section IV: Bidding Forms.	Compliance Data Sheet/ Checklist. <i>Unless the submission of the same, bid shall be considered rejected straight away</i>

Stage-2: Detailed Technical evaluation scoring criteria

The Stage-2 detailed technical evaluation would be based on bidder's experience and capability to perform the contractual obligations as per the schedule of requirements. The detailed technical evaluation will be performed by the Procurement Committee and marks will be given for each item separately as per the following scoring criteria:

Detailed Technical Evaluation Scoring Matrix

Sr.#	Scoring Criteria for Bidder	Maximum Marks
1	Experience	45
(i)	Relevant experience in providing, installation and configuration of goods & equipment of similar nature & size for clients in Public, Private or Corporate Sector organizations - Each Project: 4 Marks (Maximum 20 Marks)	20
(ii)	Financial Capability/ Strength/ Annual Turnover - Annual Turnover of Company for the last 2 years o More than PKR 15 Mill. = 10 Marks o Between PKR 10 Mill. and PKR 15 Mill. = 5 Marks o Below PKR 10 Mill. = 0 Marks	10
(iii)	Manufacturer Authorization Certificate = 10 Marks	10
(iv)	ISO 9001 Certification OR other quality certification - Valid Certificate = 5 marks - No Certificate = 0 marks	5
2	Technical Resource Capability	20
(i)	Technical Resource Strength - Technical Staff strength (5 or above) employees = 20 Marks - Technical Staff strength between 5 and 2 employees = 10 Marks - Technical Staff strength less than 2 employees = 0 Marks	20
3	Technical Bid Response	35
(i)	Technical Proposal/ Bid Response (Max. 35 marks) - Technical Solution/ Specifications = Max 5 marks - Support Service Plan (warranties, response time, onsite maintenance & technical support) = Max 15 marks o Warranties = 5 marks o Response Time for Support Service = 5 marks o Onsite Technical support = 5 marks - Quality of quoted goods/ equipment = Max 10 marks o Preferred Brands = 10 marks	35

	<ul style="list-style-type: none"> ○ Other brands = 5 marks ○ Non-brands = 0 marks 	
	TOTAL TECHNICAL EVALUATION SCORE	100

The Bidders whose Total Technical Evaluation Score is 70% or above will qualify for opening of financial bids.

(ii) Financial Evaluation

Financial bids of only those bidders who Score at least 70% on the technical evaluation would be opened before the bidders' representatives who wish to attend the financial proposal opening. All amounts and total price calculations will be checked for correctness. In case of any discrepancy in calculations, the corrections in totals will be made as per mentioned in ITB.

For each quoted item, the Financial Evaluation Scoring will be made as per the following formula:

Lowest Priced Bid will get score of 100 and all other bids will get scores proportionate to the total bid price quoted by them. The formula for proportionate score is as follows:

$$\text{Financial Evaluation Score of Bid } n = (\text{Total Price of Lowest Bid} / \text{Total Price of Bid } n) * 100$$

(iii) Formula for Total Evaluation Score Calculation

The Technical and Financial Evaluation Scores for each quoted item will be based on the criteria mentioned in preceding section. The Total Score for each quoted item will be calculated separately as follows:

$$A = \text{Technical Evaluation Score} * 70\%$$

$$B = \text{Financial Evaluation Score} * 30\%$$

$$\text{Total Score} = A + B$$

For each quoted item, scoring the highest total score in evaluation and compliant in all respects will be considered for the award of procurement order. Each item may be awarded to a different successful bidder based on the above criteria. Decision of the Procurement Committee will be binding on all concerned and in no case will be challengeable at any forum.

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Letter of Bid

The Bidder must prepare the Letter of Bid on stationery with its letterhead clearly showing the Bidder's complete name and address.

Note: All italicized text is for use in preparing these forms and shall be deleted from the final products.

Date: **[insert date (as day, month and year) of Bid Submission]**

To: **[insert complete name of Purchaser]**

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB 6);
- (b) We meet the eligibility requirements and have no conflict of interest in accordance with ITB 2;
- (c) We have not been suspended nor declared ineligible by the Purchaser.
- (d) We offer to supply in conformity with the Bidding Documents and in accordance with the Delivery Schedules specified in the Schedule of Requirements the following Goods, Equipment & Services: **[insert a brief description of the Goods, Equipment and Services OR ITEM No.]**;
- (e) Our bid shall be valid for a period of **[specify the number of calendar days]** days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (f) If our bid is accepted, we commit to obtain a performance security/ performance guarantee in accordance with the Bidding Documents;
- (g) We are not participating, as a Bidder or as a subcontractor, in more than one bid in this bidding process in accordance with ITB 2.2(d);
- (h) We, including any of our subcontractors or manufacturers or suppliers or Principals for any part of the contract, have not been declared ineligible by the Purchaser, under the Purchaser's country laws;
- (i) We are not a government owned entity.
- (j) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and

- (k) We understand that you are not bound to accept the highest scoring evaluated bid or any other bid that you may receive.
- (l) We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption.
- (m) We also declare that the Government of Pakistan or Provincial Governments have not declared us ineligible on charges of engaging in corrupt, fraudulent, collusive, or coercive practices.

Name of the Bidder* **[insert complete name of person signing the Bid]**

Name of the person duly authorized to sign the Bid on behalf of the Bidder** **[insert complete name of person duly authorized to sign the Bid]**

Title of the person signing the Bid **[insert complete title of the person signing the Bid]**

Signature of the person named above **[insert signature of person whose name and capacity are shown above]**

Date signed **[insert date of signing]** day of **[insert month]**, **[insert year]**

** : Person signing the Bid shall have the power of attorney given by the Bidder to be attached with the Bid Schedules.

Affidavit

I/We, the undersigned solemnly state that:

- 1) We have read the contents of the Bidding Document and have fully understood it.
- 2) The Bid being submitted by the undersigned complies with the requirements enunciated in the bidding documents.
- 3) The Goods, Equipment and Services that we propose to provide under this contract are eligible Goods, Equipment and Services within the meaning of Clause 2 and Clause 3 of the ITB.
- 4) The Goods, Equipment and Services that we propose to provide under this contract conform to the specifications and standards specified in Section VI, Schedule of Requirements.
- 5) The undersigned are solvent and competent to undertake the subject contract under the Laws of Pakistan.
- 6) The undersigned have not paid nor have agreed to pay, any Commissions or Gratuities to any official or agent related to this bid or award or contract.
- 7) The undersigned are not blacklisted or facing debarment from any Government, or its organization or project.
- 8) The undersigned has no dispute anywhere in the country regarding supplies & services.

We affirm that the contents of this affidavit are correct to the best of our knowledge and belief.

Signed

Note: The affidavit must be on judicial stamp paper (Rs. =50/-) by the Executive of the Firm & attested by Oath Commissioner.

Bidder Information Form

[The Bidder shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted.]

Date: *[insert date (as day, month and year) of Bid Submission]*

1. Bidder's Name <i>[insert Bidder's legal name]</i>
2. Bidder's year of registration: <i>[insert Bidder's year of registration]</i>
3. Bidder's Address: <i>[insert Bidder's legal address]</i>
4. Bidder's Authorized Representative Information Name: <i>[insert Authorized Representative's name]</i> Address: <i>[insert Authorized Representative's Address]</i> Telephone/Fax numbers: <i>[insert Authorized Representative's telephone/fax numbers]</i> Email Address: <i>[insert Authorized Representative's email address]</i>
5. Manufacturer/ Principal's Information <i>(if different from Bidder)</i> Name: <i>[insert Manufacturer/ Principal's name]</i> Address: <i>[insert Manufacturer/ Principal's Address]</i>
5. Attached are copies of original documents of <i>[check the box(es) of the attached original documents]</i> <input type="checkbox"/> Letter of Bid on Letterhead <input type="checkbox"/> Registration Certificate, NTN, GST, ATL status as proof of the legal entity named above, in accordance with ITB 2. <input type="checkbox"/> Letter of Manufacturer/ Principal's Authorization. <input type="checkbox"/> Affidavit (Non-Blacklisted). <input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 2.1. <input type="checkbox"/> Compliance Data Sheet / Checklist.

Bidder's JV Members Information Form

[The Bidder shall fill in this Form in accordance with the instructions indicated below. Following table shall be filled in for the Bidder and for each member of a Joint Venture. No alterations to its format shall be permitted and no substitutions shall be accepted.]

Date: *[insert date (as day, month and year) of Bid Submission]*

Page _____ of _____ pages

1. Bidder's Name <i>[insert Bidder's legal name]</i>
2. Bidder's JV Member's name: <i>[insert JV's Member legal name]</i>
3. Bidder's JV Member's country and year of registration: <i>[insert Bidder's country and year of registration]</i>
4. Bidder's JV Member's Address: <i>[insert Bidder's legal address]</i>
5. Bidder's JV Member's Authorized Representative Information Name: <i>[insert Authorized Representative's name]</i> Address: <i>[insert Authorized Representative's Address]</i> Telephone/Fax numbers: <i>[insert Authorized Representative's telephone/fax numbers]</i> Email Address: <i>[insert Authorized Representative's email address]</i>
6. Attached are copies of original documents of <i>[check the box(es) of the attached original documents]</i> <input type="checkbox"/> Registration Certificate, NTN, GST, ATL status as proof of the legal entity named above, in accordance with ITB 2. <input type="checkbox"/> Affidavit (Non-Blacklisted). <input type="checkbox"/> List of Director(s) and beneficial ownership.

Price Schedule Forms

*[The Bidder shall fill in these Price Schedule Forms in accordance with the instructions indicated. The list of line items in column 1 of the **Price Schedules** shall coincide with the List of Goods, Equipment and Services specified by the Purchaser in the Schedule of Requirements.]*

Price Schedule: Goods, Equipment & Services

User Note: This form is to be filled by the Bidder and shall submit with Financial Proposal.

Name of the Firm:

Bid. Ref.:

Date of opening of Bid.

S. No.	Name of the Goods, Equipment or Service	No. of Units	Unit Price	Total Quoted Price	Applicable GST/ PST	Total Price (Inclusive of GST/PST)
1	2	3	4	5	6	7
				3*4		5+6
1						
2						
3						
4						
GRAND TOTAL:						

A) FINAL TOTAL QUOTED PRICE: -----

(Both in figures and words)

Signature: -----

Designation: -----

Date: -----

Official Stamp: -----

Form of Bid Security

(Bank Guarantee)

[The bank shall fill in this Bank Guarantee Form in accordance with the instructions indicated.]

[Guarantor letter head]

Beneficiary: *[Purchaser to insert its name and address]*

Bid Reference: *[Purchaser to insert reference number/name for the Invitation for Bids/Tender Notice]*

Date: *[Insert date of issue]*

BID GUARANTEE No.:*[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that _____ *[insert name of the Bidder]* (hereinafter called "the Applicant") has submitted or will submit to the Beneficiary its bid (hereinafter called "the Bid") for the execution of _____ *[insert brief description of Goods, Equipment and Services]* under Invitation for _____ *[Insert name of the Bid]*

Furthermore, we understand that, according to the Beneficiary's conditions, bids must be supported by a bid guarantee.

At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_____) upon receipt by us of the Beneficiary's complying demand, supported by the Beneficiary's statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating that either the Applicant:

- (a) has withdrawn its Bid during the period of bid validity set forth in the Applicant's Letter of Bid ("the Bid Validity Period"), or any extension thereto provided by the Applicant; or
- (b) having been notified of the acceptance of its Bid by the Beneficiary during the Bid Validity Period or any extension thereto provided by the Applicant, (i) has failed to execute the contract agreement, or (ii) has failed to furnish the performance security/performance guarantee, in accordance with the Instructions to Bidders ("ITB") of the Beneficiary's bidding document.

This guarantee will expire: (a) if the Applicant is the successful bidder, upon our receipt of copies of the contract agreement signed by the Applicant and the performance security/performance guarantee issued to the Beneficiary in relation to such contract agreement; or

(b) if the Applicant is not the successful bidder, upon the thirty days after the end of the Bid Validity Period.

Consequently, any demand for payment under this guarantee must be received by us at the office indicated above on or before that date.

[Signature(s)]

Note: All italicized text is for use in preparing this form and shall be deleted from the final product.

Manufacturer / Principal's Authorization

*[The Bidder shall require the Manufacturer/ Principal to fill in this Form in accordance with the instructions indicated. This letter of authorization should be on the letter head of the Manufacturer / Principal and should be signed by a person with the proper authority to sign documents that are binding on the Manufacturer/ Principal. The Bidder shall include it in its bid, if so indicated in the **BDS**.]*

Date: *[insert date (as day, month and year) of Bid Submission]*

Bid Ref: *[insert number/name of bid document]*

To: *[insert complete name of Purchaser]*

WHEREAS

We *[insert complete name of Manufacturer / Principal]*, who are official Manufacturer/Principal of *[insert type of Goods/ Equipment manufactured]*, having factories/ facilities at *[insert full address of Manufacturer/ Principal's factories/facilities]*, do hereby exclusively authorize *[insert complete name of Bidder]* to submit a bid, the purpose of which is to provide the following Goods, Equipment and Services manufactured by us *[insert name and or brief description of the Goods and Equipment]*, and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and support in accordance with respect to the Goods and Equipment offered by the above firm.

Signed: *[insert signature(s) of authorized representative(s) of the Manufacturer/ Principal]*

Name: *[insert complete name(s) of authorized representative(s) of the Manufacturer/ Principal]*

Title: *[insert title]*

Dated on _____ day of _____, _____ *[insert date of signing]*

Performance Security/ Performance Guarantee

Bank Guarantee

[This Form, when required, shall only be completed by the successful Bidder after contract award.]

[The bank, as requested by the successful Bidder, shall fill in this form in accordance with the instructions indicated]

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: *[insert name and Address of Purchaser]*

Date: *_ [Insert date of issue]*

PERFORMANCE GUARANTEE No.: *[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that *_ [insert name of Supplier, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. *[Insert reference number of the contract]* dated *[insert date]* with the Beneficiary, for the supply of *_ [insert name of contract and brief description of Goods, Equipment and Services]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* (*[insert amount in words]*),¹ such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the Day of, 2...², and any demand for payment under it must be received by us at this office indicated above on or before that date.

¹ *The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, and denominated in the currency of the Contract acceptable to the Beneficiary.*

² *Insert the date thirty days after the expected completion date as per the Contract. The Purchaser should note that in the event of an extension of this date for completion of the Contract, the Purchaser would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the*

[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

Purchaser might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to an extension of this guarantee for a period not to exceed [six months][one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

Compliance Data Sheet / Checklist

S.No.	Description of Item/ Document Title	Compliance Status	Page No. in Bid/Proposal

Note: List all documents/ required information that are attached with both Technical & Financial Proposals. This Compliance Data Sheet/ Checklist should be attached with the Technical Proposal.

Section V. Eligible Countries

Eligibility for the Provision of Goods/ Equipment, Works and Services

As an exception, firms of a Country or goods/ equipment manufactured or works and services performed in a Country may be excluded if:

- 1) As a matter of law or official regulation, **the Purchaser's Country prohibits commercial relations with that Country**, provided that the Procuring Entity is satisfied that such exclusion does not preclude effective competition for the supply of the Goods/ Equipment or Services/ Works required, or
- 2) By an Act of Compliance with a Decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Purchaser's Country prohibits any import of goods from that Country or any payments to persons or entities in that Country.
- 3) For the information of Purchasers and bidders, at the present time firms, goods, equipment, works and services from the ***following countries are excluded*** from this bidding:
 - **Israel**
 - **India**
- 4) The bidder shall provide all the goods/ equipment/ deliverables/ services mentioned in Schedule of Requirements of made in the country of origin (Country of Manufacturer/ Principal) of the offered / quoted goods, works, services, equipment & all allied accessories/ deliverables. Goods, Equipment Services, Works or any of its unit components/ deliverables quoted by the bidders must not be rendered from or manufactured in Israel or India. Furthermore, the Bidder / Principal must not have any linkages with Israel or India regarding ownership, sponsoring and financing. In case any item/ deliverable may not confirms its country of origin, the bidder will provide the relevant documents to confirm the make and manufacturer. (if any item/ deliverable during course of execution may not confirm about its make then bidder shall provide an affidavit in this regard).
- 5) The bidder shall provide Undertaking of no business relations, manufacture, technical assistance etc. from Israel & India pertaining.

PART 2 – Schedule of Requirements

Section VI. Schedule of Requirements

Contents

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GENERAL REQUIREMENTS

1. Introduction

PMAS-AAUR has planned to establish smart farm at selected locations under the Pilot Project for Data Driven Smart Decision Platform (DDSDP). Various types of agriculture sensors, and equipment are planned to be used that will enable precision agriculture techniques to be performed at the farms. In this regard, PMAS-AAUR is interested in procuring various kinds of agricultural equipment, and sensors etc.

2. General

All goods, equipment and sensors as mention below should be brand new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided for otherwise in the contract.

3. Standards

The quoted goods, equipment and sensors etc., at the time of technical evaluation and on delivery, shall conform to the standards as prescribed in specifications and in the Technical Evaluation Criteria. The said conformance shall lead to subsequent issuance of the Acceptance Certificate to the Supplier by the Purchaser.

4. Environmental Standard

The goods, equipment and sensors etc. to be provided under this Contract shall be capable of withstanding the worst possible conditions, without deterioration or distortion, expected in the Project area. The following environmental parameters indicate typical conditions:

- | | |
|--|------------------------|
| • Altitude | about 450 - 550 m. asl |
| • Maximum outdoor temperature | + 50 °C to 70 °C |
| • Minimum outdoor temperature | - 20 °C |
| • Relative humidity | Approaching 100% |
| • Maximum wind speed (3.5 sec. gust??) | 120/ 150 km/hr |
| • Atmosphere | Occasional dust |
| • Terrain | Plain, Plateau |

5. Packing

The Supplier shall provide such packing/ protection of the goods, equipment and sensors etc. as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the Contract. The packing/ protection shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods'/ Equipment's final destination and the absence of heavy handling facilities at all points in transit.

6. Spare Parts/ After Sales Service

- 6.1. During warranty period, replacement/ provision of spare parts shall be free of cost for each item from the Manufacturer/ Principal (where applicable)
- 6.2. Post-warranty/ After sale service with spare parts shall be 12 months for each item from the Manufacturer/ Principal (where applicable).

6.3. After sale service without spare parts shall be further 2 years subsequent to periods mentioned in para 6.1 and 6.2 above. (where applicable).

LIST OF GOODS/ EQUIPMENT/ SENSORS/ SERVICES INCLUDING TECHNICAL SPECIFICATIONS

S.No.	Description of Goods/ Equipment/ Sensors/ Services	Specifications	Quantity
1.	Phenotyping Buggy	<i>Provided at Attachment-1</i>	01
2.	48V 120ah Golf Cart Battery for phenotype	<i>Provided at Attachment-1</i>	02
3.	Smart System Batteries	<i>Provided at Attachment-1</i>	06
4.	Electric wheel 13" 48v	<i>Provided at Attachment-1</i>	04
5.	DSLR Camera with 18-55mm IS STM Lens Specification	<i>Provided at Attachment-1</i>	01
6.	LIDAR	<i>Provided at Attachment-1</i>	01
7.	LIDAR Laser Scanner	<i>Provided at Attachment-1</i>	01
8.	Green Seeker System/ Weed Seeker	<i>Provided at Attachment-1</i>	01
9.	Nano-hyperspectral Camera	<i>Provided at Attachment-1</i>	01
10.	VIS/NIR all-in-one compact camera	<i>Provided at Attachment-1</i>	01
11.	Toughbook	<i>Provided at Attachment-1</i>	01
12.	IoT Farm Test Bed	<i>Provided at Attachment-1</i>	01 System
For each items (goods/ equipment) mentioned above that will be quoted by the bidder, following are essentially required and must be included in their bid proposal:			
1.	Installation Services	Installation, commissioning and training	
2.	Post-Warranty Services/ After Sales Services	<ul style="list-style-type: none"> - Post-warranty/ After sale service with spare parts shall be 12 months for each item from the Manufacturer/ Principal (Where applicable) - After sale service without spare parts shall be further 02 years subsequent to period (Where applicable) 	

The interested Bidders can request the Purchaser to coordinate visit of the premises/ site in order to get a better knowledge to prepare their bid proposals.

DELIVERY & IMPLEMENTATION SCHEDULE

7. Delivery and Documents

7.1. Delivery of all intended items shall be at PMAS-AAUR, Rawalpindi and it shall be maximum **Six (06) Weeks**.

7.2. In case of Import or as required otherwise, upon shipment, the Supplier shall notify the Purchaser the full details of the shipment, including Contract number, description of Goods, quantity and usual transport document. The Supplier shall mail the following documents to the Purchaser.

- (i) copies of the Supplier's invoice showing Goods' description, quantity, unit price, and total amount;
- (ii) Original and two copies of the usual transport document (for example, a negotiable bill of lading, a non-negotiable sea waybill, an inland waterway document, an air waybill, a railway consignment note, a road consignment note, or a multimodal transport document) which the buyer may require to take the goods;
- (iii) Manufacturer's or Supplier's warranty certificate;
- (vii) Certificate of origin.

7.3. *Applicable Delivery Mode:* Delivered Duty Paid (**DDP**) of Incoterms 2011

7.4. Purchase order can be cancelled in case of delay exceeding **Four (04) Weeks** beyond the stipulated period of supply.

8. Acceptance of Goods, Equipment and Works

The required deliverables mentioned under the List of Goods, Equipment and Services will be considered accepted on issuance of Letter of Completion/ Letter of Acceptance by PMAS-AAUR.

The procedure to be adopted to check conformance will be finalized by the Purchaser at the time of Contract Agreement.

9. Expected Time Duration for Delivery and Completion of Contract

The estimated time duration for completion of the above Goods, Equipment and Works is as following:

- 9.1. **Goods:** Time for delivery of goods is maximum Six (06) weeks from the signing of the Contract.
- 9.2. **Works:** Installation, Commissioning, Testing, and Operationalization of Goods/ Equipment/ Sensors at the site is maximum One (01) week after delivery of goods.
- 9.3. **Services:** As mentioned in Technical Specifications Table above. A Service Level Agreement (SLA) will also be signed in this regard, for items/ goods/ equipment/ Sensors where required.

**ATTACHMENT- 1
SPECIFICATIONS OF SMART SENSORS AND EQUIPMENT**

S.No.	Description of Goods/ Equipment/ Sensors/ Services	Specifications	Qty												
1	Phenotyping Buggy	<ul style="list-style-type: none"> • Portable buggy consisting of a lightweight extruded aluminum frame with three wheels • The front-left leading wheel is powered by an electric motor with manual speed control • The rear wheel, trailing the front powered wheel, acts as a caster wheel for steering • Aluminum frame with adjustable wheel spacing to accommodate different plot widths (1.75–2.20 m) • Ground-clearance for canopy heights up to 1.5 m. • Height adjustable sensor boom (2.0–2.5 m) enables data capture from crop emergence to maturity • Motorized wheels • DGPS/IMU system (<1 m accuracy) • Wheel encoder for perfect positioning • F7, G1 touchpad 10.1`` HD daylight readable display with power docking station, MS windows <p>Buggy construction</p> <table border="1" data-bbox="783 1473 1326 2000"> <tbody> <tr> <td data-bbox="783 1473 1042 1581">Material</td> <td data-bbox="1042 1473 1326 1581">Aluminum CNC rods</td> </tr> <tr> <td data-bbox="783 1581 1042 1648">Max. length</td> <td data-bbox="1042 1581 1326 1648">4.3</td> </tr> <tr> <td data-bbox="783 1648 1042 1715">Max. width</td> <td data-bbox="1042 1648 1326 1715">2.45 m</td> </tr> <tr> <td data-bbox="783 1715 1042 1783">Max. height</td> <td data-bbox="1042 1715 1326 1783">2.7 m</td> </tr> <tr> <td data-bbox="783 1783 1042 1895">Width wheel base</td> <td data-bbox="1042 1783 1326 1895">1.75-2.2 m</td> </tr> <tr> <td data-bbox="783 1895 1042 2000">Boom height range</td> <td data-bbox="1042 1895 1326 2000">2-2.5 m</td> </tr> </tbody> </table>	Material	Aluminum CNC rods	Max. length	4.3	Max. width	2.45 m	Max. height	2.7 m	Width wheel base	1.75-2.2 m	Boom height range	2-2.5 m	01
Material	Aluminum CNC rods														
Max. length	4.3														
Max. width	2.45 m														
Max. height	2.7 m														
Width wheel base	1.75-2.2 m														
Boom height range	2-2.5 m														

		<table border="1"> <tr> <td>Max. clearance</td> <td>1.5 m</td> </tr> </table>	Max. clearance	1.5 m	
Max. clearance	1.5 m				
2	48V 120ah Golf Cart Battery for phenotype	<ul style="list-style-type: none"> • Type: Li-ion Battery • Cathode Material: LFP • Rechargeable: Yes • Size: Medium • Transport Package: Carton or Plywood Box • Specification: 48v 120ah • Nominal Voltage: 51.2V • Nominal Capacity: 120.0Ah • Recommend Charge Voltage: 58.4V • Discharge Cut-Off Voltage: 40V • Charge Current Range: 1 to 100A • Max Continuous Discharge Current: 100A • Peak Discharge Current: 120A 3S • Dimension: 790mm*260mm*300mm • Weight: 60kg 	02		
3	Smart System Batteries	<ul style="list-style-type: none"> • Model: TB47S • Capacity: 4500mAh • Voltage: 22.2 V • Type: LiPo 6S • Energy: 99.9Wh • Net Weight: 595 g • Operating Temperature: 14° to 104° F (-10° to 40° C) • Storage Temperature: Less than 3 months: -4° to 113° F (-20° to 45° C); More than 3 months: 72° to 82° F (22° to 28° C) • Charge Temperature: 32° to 104° F (0° to 40° C) • Max Charging Power: 180 W 	06		
4	Electric wheel 13" 48v	<ul style="list-style-type: none"> • Design: Brushless • Voltage: 48V • Wattage: > 400w • Motor Type: Brushless Non-gear Hub Motor • Power design: 1000w • Shaft design: Single double 	04		

		<ul style="list-style-type: none"> • Hall sensor: Yes • 5 phase wire: Yes 	
5	DSLR Camera with 18-55mm IS STM Lens Specification	<ul style="list-style-type: none"> • 24.1MP APS-C CMOS Sensor • DIGIC 8 Image Processor • 3.0" 1.04m-Dot Vari-Angle Touchscreen • UHD 4K 24p Video and 4K Time-Lapse Movie 	01
6	LIDAR	<ul style="list-style-type: none"> • Field of application: Indoor • Version: Short Range • Reading field: Front • Light source: Visible red light (650 nm) • Laser class: 2, in standby mode laser class 1 according to IEC60825-1:2007 • Field of view: 70 ° • Scanning frequency: 180 Hz ... 500 Hz • Angular resolution: 0.1° ... 1.0° • Operating range: 0.7 m ... 3 m • Max. range with 10 % reflectivity: 3 m 	01
7	LIDAR Laser Scanner	<ul style="list-style-type: none"> • 360 Degree Laser Range Scanner 4000 samples/s 10Hz • 6m Rotation • 600 RPM • Resolution: 0.9° • 8000 samples of laser ranging per second • Range: 0.15 - 12m Distance • Accuracy: ~1% • Angular Resolution: ~0.9° • Measurement Frequency: 2000-8000Hz • Scan Frequency: 5-15 revolutions per second • Excellent performance in multiple indoor and outdoor environments without direct sunlight exposure 	01
8	Green Seeker System/ Weed Seeker	<ul style="list-style-type: none"> • Uses optical sensors to measure and quantify crop health—or vigor • Compatible with both the TMX-2050 display and FmX integrated display • Works with most variable rate controllers and delivery systems • Can be mounted on booms on most sprayers/spreaders 	01

		<ul style="list-style-type: none"> • Create a high-yielding environment for your crop to grow • Reduce nutrient input costs by eliminating excess application • Eliminate the need for application maps or agronomist recommendations • Operate night or day, and in fog or clouds 	
9	Nano-hyperspectral Camera	<ul style="list-style-type: none"> • VNIR spectral range (400-1000nm) • 270 spectral bands, 640 spatial bands • Maximum frame rate: 350Hz • 480 GB internal storage • Direct-attached GPS/IMU capabilities • Light, small, robust 	01
10	VIS/NIR all-in-one compact camera	<ul style="list-style-type: none"> • Wavelength ranges: 400 - 1000 nm • Spatial resolution: 512 pixels • Spectral resolution: 7 nm in 204 ranges • Visualization: 5 MP camera • Display: 4.3 Touchscreen display 	01
11	Toughbook	<ul style="list-style-type: none"> • Display size: 10.1 inches, , 1920 x 1200 • Multi-touch • Processor: 1.1GHz, 8GB, 128GB SSD • Wi-Fi, Bluetooth, Dual Pass • Webcam, Rear Camera • Emissive Backlit Keyboard • Win 10 Pro, 4G LTE 	01
12	IoT Farm Test Bed	<ul style="list-style-type: none"> • Lora Gateway Qty = 2 • Antennas Qty = 2 • HMI Qty = 2 • Data Logger Qty = 5 • Data Acquisition Module Qty = 2 • Power Supply Qty = 2 • Relays Qty = 5 • TCPIP Gateways Qty = 2 	01 System