RCloud Tasking Form – Part B: Statement of Requirement (SoR)

Title of Requirement	Advanced Head-Mounted Tactical HUD Development
Requisition No.	RQ0000038559
SoR Version	**0.1**

1.	**Statement of Requirements**
1.1	**Summary and Background Information**

Dstl wishes to continue its investigation into the generation of an advanced tactical Heads Up Display (HUD) for the dismounted soldier, based on previous Dstl/CSA fund [redacted]

A recently completed study into an integrated sensor/HUD/helmet concept has shown that the critical component is the HUD in terms of design and functionality, coupled with an effective method for presenting a range of relevant data and information. These are the areas that Dstl wishes to investigate further. The research entity which Dstl wishes to offer this task to is Thermoteknix Systems Ltd, based in the UK. This supplier was a major contributor to the recently completed sensor/HUD/helmet study.

A one-plus-one year programme of work (Phases 1 and 2, respectively, with Phase 2 being an Option that could be procured through the tasking mechanism is to be initiated under the [redacted]

At the end of previously funded work a combined sensor/HUD configuration was generated and demonstrated. The HUD component was the primary area of interest whilst the ability to present imagery (from the integrated sensors configured during this previous work) was key to demonstrating the overarching capability.

REDACTED UNDER FOI EXEMPTION [redacted] This next iteration will result in a HUD that has the ability to display a wide range of data including imagery, symbols, text, icons, navigational information etc. Crucially, having already proven that imagery can be effectively injected into the HUD, the next step must expand on the range of inputs that can be processed for display. These should include, but need not be limited to, [redacted]

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1.2	Requirement

1.2.1 Overall Objective

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when required. The tactical data, in the form of symbols/text/icons/sensor imagery, should be able to be presented to both eyes, overlaid onto the natural scene as appropriate. This data injection capability will include processed imagery from a suitably configured Processing/data fusion Module.

The spectacle/HUD combination will thus provide:

- Day/night viewing of tactical data
- Day/night viewing of sources of imagery such as visible (Vis), lowlight (LL) and thermal imagery (TI), at a resolution commensurate with that of the highest of the Vis/LL/TI sensor outputs, and with minimum processing-display latency.
- Good visible transparency to allow clear, unaided viewing when required
- An effective see-through ('naked eye') field of view of 120 degrees or greater

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1.2.2 General approach

The above will be achieved by instigating research to:

- Increase the range of inputs that can be ingested and displayed;
- Generate improvements in both the quality of the displayed information (resolution, contrast, refresh rate) and the usability under a broad range of operating environments (especially ambient light level);
- Address the alignment/boresight issues when displaying imagery from body worn sensors (i.e. when such sensors are not aligned with the direct vision viewing axes of the wearer);

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1.2.3 Phase 1

In Phase 1, the following progress is required:

- Using the helmet-mounted HUD configuration from previous work as a starting point the ability to feed into a HUD processing module a range of tactically relevant inputs for viewing in a common head-worn HUD should be developed and demonstrated. Inputs should include, but need not be limited to:

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- Strategies for addressing parallax between body worn sensor imagery and real world direct viewing should be proposed and triaged. The aim will be to minimise spatial displacements between directly viewed and overlaid images of real world objects rendered in the HUD. Implementation of a down-selected strategy(ies) will be deferred to Phase 2 (Option)

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By the end of Phase 1 a proof of principle demonstrator should be provided demonstrating the following:

- A dedicated data fusion module able to be worn by the soldier;
- A non-optimised integrated HUD for viewing data as described above;
- The ability to select and view a range of information sources (imagery, icons, symbols and navigation aids) in a head-mounted HUD (minimal SWaP but not optimised at this stage)

After a suitable demonstration the system will form part of the project deliverables but it may be retained by Thermoteknix Systems Ltd. if a Phase 2 Option is exercised.

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1.3	Options or follow on work *(if none, write 'Not applicable')*

Dstl wishes to include in this R-Cloud Task the provisions for a Tasking Order Arrangement whereby potential additional work could be provided under the contract. An example of the additional R&D Services could be but is not limited to:

Subject to a review at the end of Phase 1 in March 2024, Dstl may wish to fund a Phase 2.

This phase will transition the output from Phase 1 into a Proof-of-Concept demonstrator.

A Phase 2 would therefore be expected to deliver the following additional capability:

- *An implemented* REDACTED UNDER FOI EXEMPTION *down-selected during Phase 1);*
- *A data fusion module to feed information into the HUD in a low SWaP, soldier-worn configuration:*
  - *The module must be able to present imagery, navigation information, symbols, icons, alerts etc. (see 1.2.3 above);*
  - *Imagery/data refresh rates must be appropriate to both the source of information and its intended use.*
- *A method for overcoming parallax issues (between the direct-view axis and injected imagery from external body-worn sensors);*

The above would be expected to be demonstrated by the end of Phase 2 (in March 2025).

The demonstrator system will be provided to Dstl as part of the project deliverables.

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In addition, this option should develop and demonstrate the hardware and software for a Man-

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	REDACTED UNDER FOI EXEMPTION [redacted] Dstl sets out to confirm that the above list is provided for reference, and as an example of the type of work that might be subject to additional tasking. At this stage these examples are not funded and Dstl does not offer a guarantee that any additional tasks may be placed. Where Dstl does identify a requirement, Dstl will request that the supplier provides a detailed proposal for each additional task and this will undergo technical and commercial review to ensure it is in scope with the aims of this requirement and offers value for money. Firm Prices for any additional requirements shall be submitted by the Supplier to Dstl and shall utilise rates within the allowable rates detailed on the R-Cloud rate card. No work is to be undertaken without formal amendment to the contract, without which any such work undertaken will be at the Supplier's risk. The Limit of Liability under this Tasking Order Arrangement shall be £250,000.00 (Ex VAT), and shall be valid for additional work to be placed until 31/03/2025
1.4	**Contract Management Activities**
	Bronze, to be managed locally by the Dstl Project Manager.
1.5	**Health & Safety, Environmental, Social, Ethical, Regulatory or Legislative aspects of the requirement**
	To be compliant with ISO9001 (Quality Management Systems).

1.6	Deliverables & Intellectual Property Rights (IPR)					
Ref.	**Title**	**Due by**	**Format**	**TRL***	**Expected classification (subject to change)**	**What information is deliverable**
D - 1	Monthly progress report detailing work on the HUD development, in the form of a 'Quad Chart'.	Starting from T0 (contract award) and subsequently throughout the duration of the contract. Quad charts should be delivered by the fifth working date of the	1-page quad chart. (.pptx)	n/a	UK OFFICIAL SENSITIVE	As per quad chart pr

		following month.				
D – 2	Presentation of progress at quarterly progress meetings life of the contract (including Phase 2 should the option be taken up)	**Starting from T0+3 months, dates for these quarterly progress meetings to be mutually agreed following contract award.**	Presentation (.pptx)	n/a	UK OFFICIAL SENSITIVE	The presentation sha technical work comp knowledge and know conclusions of work recommendation for the remaining time o
D – 3	Technical progress reports at 6-monthly intervals.	March 2024 Phase 1	MS Word	n/a	UK OFFICIAL SENSITIVE	The technical reports technical work comp knowledge and know conclusions of work

	Delivery and acceptance of these reports form part of the payments schedule.	October 2024 and March 2025 Phase 2 (Option)				recommendations fo in the remaining time and for the final tech end of Phase 2, any
D – 4	Presentation and demonstration of progress at the end of each financial year, that is on March 2024 and March 2025 (Phase 2 Option).	Date of the presentation and demonstratio n to be mutually agreed, but anticipated to be no later than 10 working days before the end of the financial year.	Presentati on (.pptx)	TRL 3 for demo in phase 1 and TRL 5 for demo in Phase 2	UK OFFICIAL SENSITIVE	The presentation sha technical work comp knowledge and know conclusions of work recommendation of v months if there are a the work plan. The demonstrations agreed depending o could include device range of operating p At the end of each P developed as part of be delivered to Dstl f project does not prog 2, but concludes at t

						then hardware devel project shall be deliv retention

1.7	**Deliverable Acceptance Criteria**
	Demonstrations will take place at contractor's premises, or at a location to be mutually agreed.

2	**Evaluation Criteria**
2.1	Method Explanation
	Mandatory Criteria (Pass/Fail) and overall affordability/acceptance to the Authority. The Authority will consider the Contractors Technical Proposal relating to the demonstration of how the requirements at 1.2 will be met and the quality and content of the deliverables provided in response to this tasking form. Additionally, shall be subject to a series of commercial pass / fail governance questions.
2.2	Technical Evaluation Criteria

The technical assessment shall consider the suitability of the submitted proposal against the Dstl provided Statement of Requirement and defined deliverables.

The table below contains the technical criteria against which all proposals will be scored.

ID	Criteria	Score
1	The proposal demonstrates a clear understanding of HUD technology and how it may be used for enhancing situational awareness and operational effectiveness in military environments	0,3,7,10
2	A viable plan is included in the proposal to develop the data fusion module to enable it to receive, condition and display the range of information stated in section 1.4.3 above	0,3,7,10
3	A viable plan is provided to demonstrate the performance of the developed HUD under realistic operating environments (SWaP restrictions, light levels etc.)	0,3,7,10
4	The supplier understands the performance required of the Proof-of-Principle demonstrator	0,3,7,10

5	The supplier understands the performance required of the Proof-of-Concept demonstrator (Phase 2 Option)	0,3,7,10
6	At least one parallax mitigation strategy is proposed in Phase 1 along with a path for implementation in Phase 2 (Option)	0,3,7,10
7	The proposal includes a project plan, including details of timings, resources, any dependencies between the different tasks and any critical paths and decision points.	0,3,7,10

The following scoring guide will be used to evaluate technical scores against each criteria.

TABLE 2 – Scores for awarding

Rating	Characteristic	Score
Excellent	The response addresses all elements of the requirement, and provides a comprehensive, unambiguous and thorough explanation of how the requirement will be fulfilled.	10
Good	The response addresses all the elements of the requirement and provides sufficient detail and explanation of how the requirement will be fulfilled.	7
Adequate	The response addresses the majority of elements of the requirement but is weak in some areas and does not fully detail or explain how the requirement will be fulfilled.	3
Inadequate	The response does not address or explain how the requirement will be fulfilled and fails to demonstrate the ability to meet the requirement.	0

2.3	Commercial Evaluation Criteria
	Proposals received by the closing date will undergo Commercial evaluation as required by the R-Cloud Framework. Evaluation of Commercial bids will be undertaken against responses to the questions detailed below and scored in accordance with the 'Commercial Scoring Definitions' underneath.

Ref	Question	Marking
1	The Contractor's proposal has been submitted with all pricing offered as a Firm Price (i.e. non variable).	Pass/Fail
2	One full technical proposal, excluding all price detail has been submitted	Pass/Fail
3	One full Technical and Commercial proposal, including all price detail, has been submitted	Pass/Fail
4	The R-Cloud Part C Task Response Form has been completed and submitted including: a. Annex A: Statement Relating to Good Standing has been signed. b. Annex B: Notification of Intellectual Property Rights (IPR) Restrictions (DEFFORM 711) has been completed with sufficient detail and is acceptable to the Authority, providing required rights of use.	Pass/Fail
5	Completed Research Worker Forms (PPRW) have been submitted where appropriate or details of existing security cleared research workers identified	Pass/Fail
6	The submitted proposal has a validity period of a minimum of 60 days from the tender closing date	Pass/Fail
7	The supplier accepts any additional conditions specified under Tasking Form Part A.	Pass/Fail
8	The supplier has submitted a completed DEFFORM 528 or provided a confirmed 'Nil Return'.	Pass/Fail
9	A completed Supplier Assurance Questionnaire (SAQ) has been submitted against the specified Cyber Risk Profile.	Pass/Fail

The score (Pass/Fail) awarded to each of the Commercial Sub-criteria will be in accordance with the following definitions:

Score	Definition
Pass	Fully meets the Authority's requirement. Provision and acceptance of the sub-criteria information in the format requested, which is clear, unambiguous and transparent.
Fail	Unacceptable/Nil Return. Tenderer did not respond to the question or the response wholly failed to demonstrate an ability to meet the sub-criteria requirement. **Any proposal marked as a Fail will be excluded from the competition, and shall not be considered for Task Award.**