

Innovation and Technology Support Programme

Application Form

(Platform and Collaborative Research Projects)

General

1. Please read the '**Guide to Filling in the Application Forms of the Innovation and Technology Support Programme (ITSP)**' ("**Guide**") before completing this form. (Please use ITF Form 2.0 for Tier 3/Seed projects.)
2. Application should be submitted by the lead applicant. Application submitted by individuals will not be accepted.
3. In case of an application involving more than one party (e.g. the lead applicant and industry co-applicant under a collaborative project), the lead applicant should fill in the form.
4. If an applicant wishes to apply for more than one project (as in the case of cluster projects), it should complete one form in respect of each project.
5. Please complete this form in either Chinese or English (with the exception of certain sections for the purpose of uploading to the ITC webpage in future as necessary).
6. Please attach annex(es) if space provided in the form is insufficient. Other information in support of the application, e.g. diagrams, photos, videos, samples, etc. are welcomed.
7. All information provided in the form will be used for processing the application and for related purposes, e.g. project monitoring, statistical analysis, etc. It may be disclosed to other Government departments or third parties, if such disclosure is necessary for the purposes of processing the application and related purposes.
8. This form must be submitted in hard copy in triplicate (1 original plus 2 duplicate copies). In addition, a soft copy, preferably in MS Word 2003 or above, should be provided.

9. In the event of any inconsistency between this form and the guide mentioned in paragraph 1 above on the one hand, and the agreement to be signed between the Government and the lead applicant in relation to the project on the other (if the application is successful), the latter will prevail.

10. This form is divided into the following sections: -

Part A	The Applicant
Part B	The Project
Part C	Justifications
Part D	Declaration

Project Title	(Chi) 兒童弱視及雙眼立體視覺訓練目鏡
	(Eng) Children goggle for amblyopia (lazy eyes) and binocular vision training
Lead Applicant ^{Note}	(Chi) 香港應用科技研究院有限公司
	(Eng) The Hong Kong Applied Science and Technology Research Institute Company Limited

Note:

1. *The lead applicant must either be:*
 - a R&D Centre set up under the Innovation and Technology Fund (ITF); or
 - a designated local public research institute (viz. local universities, Hong Kong Productivity Council, Vocational Training Council and Clothing Industry Training Authority).
2. *For projects under R&D Centres, the lead applicant must be the relevant R&D Centre.*

I. Information on Lead Applicant

In applications involving more than one party, the lead applicant should fill in this form and provide all necessary information with the consent of parties concerned.

Lead Applicant

R&D Centre[^]

- Automotive Parts and Accessory Systems R&D Centre (APAS)
- Hong Kong Applied Science and Technology Research Institute (ASTRI)
- Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies (LSCM)
- Nano and Advanced Materials Institute (NAMI)
- Hong Kong Research Institute of Textiles and Apparel (HKRITA)
- Local University (please specify):

Designated Local Public Research Institute[^]

- _____)
- Hong Kong Productivity Council (HKPC)
 - Vocational Training Council (VTC)
 - Clothing Industry Training Authority (CITA)

[^] Please select (by putting in '✓') where appropriate.

Key Contact Person(s) Assigned by the Lead Applicant ^{Note}

1. Project Coordinator – on technical matters

Name	(Chi)	陳大文博士
	(Eng)	Dr Tai-man CHAN
Post Title		R&D Director
Address	(Chi)	香港新界沙田香港科學園科技大道西 2 號 6 座 3 樓
	(Eng)	3/F, Building 6, 2 Science Park West Avenue, Hong Kong Science Park, Shatin, New Territories, Hong Kong
Tel	852-3406 2983	Fax 852-3406 2801
E-mail	tmchan@astri.org	

2. Administrative Coordinator – on administrative matters

Name	Dr Chi-nan Lee	
Post Title	Vice President, Opto-Electronics Domain	
Address	3/F, Building 6, 2 Science Park West Avenue, Hong Kong Science Park, Shatin, New Territories, Hong Kong	
Tel	852-34062549	Fax 852-36411018
E-mail	cnlee@astri.org	

Note: Please provide details of two key contact persons, one to be responsible for overseeing the carrying out of the R&D project (e.g. technical matters) and the other to be responsible for handling administrative matters. The lead applicant may choose to designate one person to be in charge of both.

II. Information on Industry Co-Applicant

Industry Co-applicant (only applicable to collaborative projects).^{Note}

Company Name	(Chi)	_____
	(Eng)	_____
Name	of	_____
Contact Person		_____
Post Title		_____
Address		_____
Tel		_____
	Fax	_____
E-mail		_____
Webpage		_____

Note: The industry co-applicant can either be:

- a private sector company incorporated in Hong Kong under the Companies Ordinance (Cap. 32) and is not related to the lead applicant in terms of ownership or management; or
- an industry support organisation, trade and industry association or professional body which has capacity to enter into contracts.

III. Information on Sponsor(s)/Supporting Party(ies)

Sponsor(s)/Supporting Party(ies) ^{Note}

		Name	Contact Person (Position, Tel No, Fax No and E-mail)
In Hong Kong	Government departments/ public bodies (官)	Children Hospital	Dr. Alice Ho, Head, Ophthalmology Department
	Companies/ industry or trade associations (產)	(1) ABC (HK) Ltd (2) XYZ Industries Ltd (3) KLM Electronics	Dr Grace Chow, CEO Mr Wong Wing Ping, CTO Ms Lisa Lau, Head, Electronics Department
	Local universities (學)	Hong Kong University	Prof Charles Cheung, Chair, Engineering Department
	Other research institutes (研)		
	Others (e.g. charitable trusts or prominent personalities in the field)	(1) HK Eye Foundation (2) Jockey Club Charitable Trust	Dr Bill Lai, Director (IT&T), United Baptist Hospital Ms Jane Tse, CFO

*Note: Please indicate (by putting in *) where the supporting party(ies) is/are the implementation organisation of the project.*

		Name	Contact Person (Position, Tel No, Fax No and E-mail)
Outside Hong Kong	Government departments/ public bodies (官)		
	Companies/ industry or trade associations (產)	Desmond Healthcare USA	Dr. John Smith CTO
	Universities (學)		
	Other research institutes (研)	Lund University Denmark	Prof Lars MacDonald, Director, Eye Research Institute
	Others (e.g. charitable trusts or prominent personalities in the field)		

Note: Please provide letters of support where possible.

Part B The Project

I. Key Project Details

1. Project Title : Children goggle for amblyopia (lazy eyes) and binocular vision training

2. Type of Project^{^ Note} Platform Project Collaborative Project

[^] Please select (by putting in '√') where appropriate.

3. Total Project Cost (HK\$):	14,875,000
Amount of Industry Sponsorship (HK\$):	2,520,000
Percentage of Industry Sponsorship vs. Total Project Cost (%):	17%
Amount of Other Sources of Financial Contribution (HK\$):	450,000
Percentage of Total Financial Contribution vs. Total Project Cost (%):	20%
Amount of ITF Funding Sought (HK\$):	11,905,000

Note:

1. For the differences between industry sponsorship and other sources of financial contribution, please refer to Part C III.B of this form.
2. All platform projects would require industry sponsorship from at least two private sector companies which are not related to the lead applicant in terms of ownership or management to cover at least 10% of the total project cost. The sponsorship can either be in cash or in-kind or a combination of both. The Intellectual Property (IP) rights generated from the project shall be owned by the lead applicant, viz. R&D Centre or the relevant designated local public research institute as the case may be.
3. For collaborative projects, the industry co-applicant should contribute no less than 50% of the total project cost (or no less than 30% in the case of R&D Centres projects). The IP rights may be owned by the industry co-applicant if it has actually contributed 50% or more of the total project cost within the Project Period. If not, the IP rights should be owned by the lead applicant. As regards the IP benefit sharing and related arrangement, it will be subject to negotiation among the parties concerned and will be set out in the project agreement
4. For further details concerning the IP rights arrangement, please refer to Part C.VI of the Guide.

4. Schedule of the Project Period

Commencement Date (dd/mm/yyyy):	1/7/2011
Completion Date (dd/mm/yyyy):	31/12/2012
Duration of the Project Period (no. of months, max. 2 years):	18

5. Related Information

(a) Whether previous research has been done in relation to the proposed R&D work?

- Yes. (Please provide details on how it has been funded e.g. ITF, University Grants Committee/Research Grants Council (in particular the Area of Excellence (AoE) Scheme, Theme-based Research Scheme and Collaborative Research Fund which may have good potential for migration to mid-stream/downstream research), Environment and Conservation Fund, etc.)

RGC funded research (“Amblyopia Neuroscientific Investigation” 2009-10) by Prof Cheung, and an ITF ASTRI seed project (ARD/048).

Please see Annex 1 “Technical Background” for more information.

- No.

(b) Has there been/will there be any attempt to seek funding support for this project from sources other than ITF?

- Yes. (Please provide details.)

- No.

II. Brief Description of Project Proposal

1. Technology Area[^]

- Advanced Manufacturing/Process Development
- Automotive Parts and Accessories
- Biotechnology
- Chinese Medicine
- Electronics
- Energy
- Environmental Protection
- Information and Communication Technologies
- Logistics and Supply Chain Management
- Nanotechnology and Materials Science
- Testing and Certification
- Textiles/Clothing/Footwear
- Others (please specify) _____

[^] Please select (by putting in '✓') where appropriate.

Please note that project proposals falling under the technology areas of the R&D Centres should be submitted via the appropriate Centre.

Where appropriate, please provide details if the proposed R&D work pertains to "Testing and Certification" or has any interface with the work of Hong Kong Council for Testing and Certification (HKCTC) – in particular the four selected trades and two emerging trades.

No. _____

2. Project Summary (no more than 200 words)

(Please provide a summary of the project objectives, R&D methodology involved, impact and benefits, etc.)

(Chi)

本項目目的是要促進有視力問題的兒童接受視覺訓練。我們計劃開發配備弱視和協視訓練軟件的獨立式目鏡儀器。該目鏡會具有協視控制及光學變焦功能，現時市場上的電子目鏡沒有同類功能。

由大學開發的高精密度顯示器訓練模式經修改後，會用於備有彩色顯示屏的目鏡。我們會優化選定硬件平台的影像轉換演算法。標準目鏡設計會增設光學變焦及觀看角度調較功能。我們會加入感應鏡頭，以便自動控制訓練模式和個別調整功能，也會加入無線通信模塊，以供下載視頻作娛樂用途和上載訓練數據作臨牀跟進用途。

這種新開發的目鏡體積輕巧，具有多項功能，可讓兒童安坐家中接受視覺訓練，改善兩類普遍的視力問題，即弱視及協視。這項科技有助改善本港兒童的視力。目鏡平台亦可為中風康復者及長者等有其他醫療需要的人士提供視覺訓練。

(Eng)

The objective of this project is to promote children training for visual problems. We plan to develop a stand-alone goggle device with amblyopia and binocular vision training software. The goggles will be equipped with binocular control and optical zoom which cannot be found in any of the electronic goggles in the market.

Training patterns developed in universities for high precision monitors will be adapted to goggles with color display. We will optimize the image transformation algorithm for the selected hardware platform. Standard goggle design will be enhanced with optical zoom and viewing angle adjustment. We will add a sensing camera for automatic control of training patterns and individual adjustments. Wireless communication module will be included for downloading video for entertainment and uploading training data for clinical follow-up.

The developed lightweight, adaptive goggles will allow the children to receive eye training at home for the two common visual problems: amblyopia and binocular vision. This technology could help improve the eyesight of children in

Hong Kong. The goggle platform could also be used to provide training for other healthcare needs such as stroke recovery patients and the elderly.

SAMPLE

3. Project Deliverables (no more than 200 words)

(Please provide a brief description of the R&D output in both qualitative and quantitative terms and the timeframe required for achieving it.)

- 1) Hardware and software architecture design for weight and power objectives. Packaging technology will be selected for the chosen MCU, display, camera and RF modules with a target weight of 400gm and 4W power consumption.
- 2) Image processing software for goggles tethered to PC. Transformation algorithm for training patterns will be developed on PC and streamed to goggles for comparison with high precision b/w versions. First version of image processing of camera output will be evaluated.
- 3) Delivery of electronics and software R&D work for wireless prototype. Software developed on PC will be ported to MCU packaged with display driver and RF module. Electronic assembly of hardware components completed.
- 4) Delivery of opto-mechanical R&D work for goggle prototype. Development of optical zoom and viewing angle adjustment completed. Camera with optical components will be mounted and tested with improved image processing software.
- 5) Delivery of integrated prototype with control software for evaluation. System testing will be performed after all components have been integrated. Automatic control of training patterns and individual adjustment will be validated.
- 6) Fine-tuning of hardware and software completes. Twenty prototype goggles will be provided to HK Children Hospital for user feedbacks.

4. Wider Total Effect

Please provide details on whether this project is related to other projects (ITF or non-ITF; previous or on-going) to create synergy and a wider total effect - concept of cluster projects, e.g. three different projects to combat water pollution at a certain location.

There was a completed seed project (12Feb-11Aug2010) on the feasibility of pattern transformation and eye image processing. Potential related projects in the future include using the goggle platform to provide training for other healthcare needs such as stroke recovery patients and the elderly.

5. Location of R&D work

Please provide details on the geographical location(s) where the R&D work will be undertaken: local vs. outside Hong Kong; in R&D Centres/universities/ Science Park, etc.

	Name/Location of Research Institute(s)	Percentage of R&D work to be Undertaken ^{Note}
Local	The Hong Kong Applied Science and Technology Research Institute Company Limited	100%
Outside Hong Kong	Lund University	To take on research work with different approach on verification of the project results

Note: The R&D work of the project should primarily be conducted within the territory of Hong Kong. However, given the close ties between Hong Kong and the Mainland, up to 50% of the R&D work of a project can be conducted (and relevant expenditure incurred) in the Mainland. Where certain R&D tasks need to be conducted outside Hong Kong (other than the Mainland), prior approval from ITC must be sought with justifications (e.g. countries/provinces/cities/overseas research institutes which have entered into technology collaborative agreements/Memorandum of Understanding with the Government or local universities/R&D Centres).

6. Project Milestones

Please set out the key milestones pertaining to the R&D deliverables to be achieved at different stages of implementation. For the first progress report, there may not be significant progress in terms of R&D deliverables but we hope all preparatory work has been completed (e.g. recruitment of staff, procurement of equipment, etc.).

Proposed Commencement Date:

1/7/2011

	Calendar Date (dd/mm/yy)	Work Progress/R&D Deliverables (in quantity and quality where possible)
1 st Project Milestone: (6 th month from commencement)	31/12/2011	Hardware and software architecture design for weight and power objectives. Image processing software for goggle tethered to PC
2 nd Project Milestone: (12 th month from commencement)	30/6/2012	Delivery of electronics and software R&D work for wireless prototypes with control software for evaluation
3 rd Project Milestone: (18 th month from commencement)	31/12/2012	Delivery of opto-mechanical R&D work for goggle prototypes and complete fine-tuning of hardware and software components
4 th Project Milestone: (24 th month from commencement)		

Proposed Completion Date:

31/12/2012

I. Innovation and Technology Component

Please refer to the assessment framework in Part C of the “Guide”.

1. Please provide details on how the project pertains to applied research (vs. upstream or basic research).

This project pertains to the development of advanced signal processing algorithms and miniaturization technology for developing a stand-alone goggle device with amblyopia and binocular vision training software. The goggles will be equipped with binocular control and optical zoom which cannot be found in any of the electronic goggles in the market.

Training patterns developed in universities for high precision monitors will be adapted to goggles with color display. We will optimize the image transformation algorithm for the selected hardware platform. Standard goggle design will be enhanced with optical zoom and viewing angle adjustment. We will add a sensing camera for automatic control of training patterns and individual adjustments. Wireless communication module will be included for downloading video for entertainment and uploading training data for clinical follow-up.

Please see Annex 2 “Implementation Approach” for more information.

2. Please provide details from the following angles as fit:

Area	Details
(a) Whether the project will give rise to new technologies or products (global/regional/ Hong Kong)	While training patterns developed in universities for high precision b/w monitors have proven to be effective, this is the first attempt to adapt those patterns to goggles with 8-bit color display. will be adapted to goggles with color display. Another novel aspect is the use of an integrated camera for automated control of training patterns.
(b) Whether the project will enhance quality (e.g. capacity, reliability, speed, etc.)	Through the added features of optical zoom, viewing angle adjustment and a camera for feedback control, a consumer-grade goggle device has been enhanced to provide training for improving the visual acuity of children.
(c) Whether the project will render cost more competitive	In comparison to the supervised use of an expensive monitor at a clinic, the training is provided at home with a lower cost device. With the better user experience, the child would benefit more from the training and reduce the overall healthcare cost.
(d) Others	

II. Technical Capability

1. Please provide details on the viability of the proposal from the technical perspective.

After the packaging technology has been selected for the chosen MCU, display, camera and RF modules with a target weight of 400gm and 4W power consumption, the hardware and software architecture design will be completed in the first 4 months.

Transformation algorithm for training patterns will first be developed on PC and streamed to goggles for comparison with high precision b/w versions. First version of image processing of camera output will be evaluated for goggles tethered to PC after 6 months..

Software developed on PC will then be ported to MCU packaged with display driver and RF module. Electronic assembly of hardware components should be completed within 12 months. Development of optical zoom and viewing angle adjustment should also be completed. Camera with optical components will be mounted and tested with improved image processing software.

By the end of month 15, system testing will be performed after all components have been integrated. Automatic control of training patterns and individual adjustment will be validated. Integrated prototype with control software would be ready for evaluation.

[During the last 3 months of the project, twenty prototype goggles will be provided to the 3 local hospitals for user feedbacks, which would be used for fine-tuning of hardware and software.]

Please see Annex 2 “Implementation Approach” for more information.

Additional Information:

SAMPLE

2. Please provide details on the competence of the Project Coordinator and his/her research team by providing background, qualifications, experience, track record in previous research (especially ITF), recognition (locally and outside Hong Kong), etc. Please include any other information you consider useful to support the application (e.g. industry and academic awards won in the past, endorsement of outstanding experts in the field, etc.).

Project Coordinator	<p>Dr Tai-man CHAN (PhD in ME, Harvard) has over 20 years of R&D experience in system design and miniaturization for consumer products using advanced techniques in RF, embedded software and SiP. (Please see CV in Annex 2.)</p>
Research Team	<p>Ms Siu-ling WONG, HKU (First Class Hon), Stanford University (Research Scholar) has over 15 years of R&D experience in image processing, including video compression and image enhancement and denoising. (Please see CV in Annex 2.)</p> <p>Mr James TSANG, CUHK (First Class Hon), Cambridge University (Visiting Scholar), has over 25 years of R&D experience in mechanical and optical systems, including auto-focus camera. (Please see CV in Annex 2.)</p>

III. Financial Considerations

A. Projected Expenditure

Please list out all expenditure items to be incurred within the Project Period.

Summary:

	Cost (HK\$'000)
(i) Manpower	8,058.0
(ii) Equipment	1,470.0
(iii) Other Direct Costs	5,347.0
(iv) Administrative Overheads (where applicable)	
Total Project Cost (A):	14,875.0 (i)+(ii)+(iii)+(iv)

Note: Please provide breakdown of each overpage.

(i) Manpower

Please provide details of members in the team in descending order (i.e. more senior members first).

Position/ Rank ^{Note}	No. Required	Duration (months)	Monthly rate or equivalent (HK\$'000)	Total (HK\$'000)	Job Description
*R&D Director	0.5	18	165.3	1,488.0	See Annex 3. "Budget"
Engineer	10	18	36.5	6,570.0	See Annex 3. "Budget"
Sub-total A(i):				8,058.0	

*Note: Please indicate (by putting in *) for Project Coordinator and Deputy Project Coordinator.*

Additional Information:

(ii) Equipment

Equipment to be used ^{Note}	Quantity	Unit cost (HK\$'000)	Total (HK\$'000)	Justifications for Need (e.g. why essential for the research, reasons why existing equipment cannot be used/shared for the project; how equipment will be treated after completion of the project etc.)
Assembly equipment	2	75.0	150.0	See Annex 3. "Budget"
Testing equipment#	1	786.0	786.0	See Annex 3. "Budget"
Optical equipment	5	66.0	330.0	See Annex 3. "Budget"
CAD software	1	161.5	161.5	See Annex 3. "Budget"
High end workstation	2	21.26	42.5	See Annex 3. "Budget"
Sub-total A(ii):			1,470.0	

Note:

1. Please indicate (by putting in #) where the equipment is estimated to cost HK\$500,000 or above per item.
2. Please indicate (by putting in @) where the equipment is to be covered by in-kind contribution from the lead applicant or industry sponsor(s) or industry co-applicant or supporting organisations.

Additional Information: *The testing equipment will be available for shared use by HKU and CUHK Medical Faculty researchers during and after the completion of this project. All the equipment will be part of the infrastructure for future bio-medical applied R&D projects in ASTRI.*

(iii) Other Direct Costs

Item ^(Note)	Quantity	Unit cost (HK\$'000)	Total (HK\$'000)	Justifications for Need
Audit fee	1	20.0	20.0	
Patent fee	2	100.0	200.0	Patent fee is budgeted for two patents
Conference	3	32.0	96.0	See Annex 3. "Budget"
Duty travel	14	11.0	154.0	See Annex 3. "Budget"
Consultants	4	177.5	710.0	See Annex 3. "Budget"
Electrical design & prototypes	20	109.4	2,187.0	See Annex 3. "Budget"
OLED and LCoS display samples [@]	20	20.0	400.0	See Annex 3. "Budget"
Optical design & prototypes	20	79.0	1,580.0	See Annex 3. "Budget"
Sub-total A(iii):			5,347.0	

Note: Please indicate (by putting in [@]) where the consumables are to be covered by in-kind contribution from the lead applicant or industry sponsor(s) or industry co-applicant or supporting organisations.

Additional Information:

(iv) Administrative Overheads *(Only applicable to projects undertaken by R&D Centres (except for ASTRI which is under separate funding arrangement), local universities and Vocational Training Council.)*

Item	Total (HK\$'000)
Administrative Overheads met by industry co-applicant ^{Note}	
Administrative Overheads met by ITF	
Sub-total A(iv):	N/A

Note:

1. *For platform projects, the administrative overheads to be included in the project budget can be at most 15% of the ITF funding requested (net of overhead).*
2. *For collaborative projects, the administrative overheads to be included in the project budget can be at most 15% of the approved total project cost. The industry co-applicant and ITF will each contribute 50%.*

B. Industry Sponsorship/Other Sources of Financial Contribution

Please list out industry sponsorship and other sources of financial contribution to be received within the Project Period.

Summary:

Category	Amount (HK\$'000)
(i) Industry Sponsorship	2,520.0
(ii) Other Sources of Financial Contribution	450.0
Total (B):	2,970.0 (i)+(ii)

Note: Please provide breakdown of each overpage.

(i) Industry Sponsorship ^{Note}

Name of Sponsor	Cash Contribution (HK\$'000)	In-kind Contribution		Total (HK\$'000)
		Details (e.g. description of equipment/consumables etc. and basis of conversion to cash value)	Cash Equivalent (HK\$'000)	
Local				
ABC (HK) Limited	920.0	OLED and LCoS display samples@	400.0	1,320.0
XYZ Industries Limited	700.0			700.0
KLM Electronics	500.0			500.0
Overseas				
Desmond Healthcare		Asia/Pacific Region VP will attend quarter review meeting for future consideration of collaboration.		
Sub-total B(i):				2,520.0

Note: The pledged industry sponsorship should be paid in accordance with the following schedule:-

- **Platform projects:** at least two private sector companies shall contribute industry sponsorship to cover at least 10% of the total project cost. At least 50% of the industry sponsorship (both cash and in-kind) should be paid upfront and the remaining sum should be paid at the 'mid-point' of the Project Period.
- **Collaborative projects:** ITF funding is released on a matching basis, i.e. for every dollar or in-kind contribution to be actually made by the industry co-applicant, this will be matched by ITF.

(ii) Other Sources of Financial Contribution

Please set out other sources of financial contribution in this section. It can include own sources of funding provided by the lead applicant, contribution from supporting parties, e.g. charitable organizations, venture capitalists, individuals, etc. It can also include contribution by project team members. It shall however not include income generated from the project and the industry sponsorships specified in the table above.

Name of Contributor	Cash Contribution (HK\$'000)	In-kind Contribution		Total (HK\$'000)
		Details (e.g. description of equipment/consumables etc. and basis of conversion to cash value)	Cash Equivalent (HK\$'000)	
HK Eye Foundation	300.0			300.0
Jockey Club Charitable Trust	150.0			150.0
Sub-total B(ii):				450.0

Note: Other sources of financial contribution for platform projects should be received by the 'mid-point' of the Project Period.

C. Project Income

Please list out all estimated income (e.g. licence fees, royalties, etc.) to be received.

Summary:

Category	Amount (HK\$'000)
(i) Estimated Income to be Received During Project Period	-
(ii) Estimated Income to be Received After Project Completion	12,000.0
Total Estimated Project Income (C):	12,000.0 (i)+(ii)

Note: Please provide breakdown of each overpage, and the basis of estimation.

D. Funding Request

	Amount (HK\$'000)
Total Project Cost (A):	14,875.0
Total Industry Sponsorship and Other Sources of Financial Contribution (B):	2,970.0
Net Amount of Funding Sought from ITF (D):	11,905.0 (D) = (A)-(B)

ITF Funding vs. Total Project Cost (expressed as a %):	80% $\frac{(D)}{(A)}$
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IV. Existence of a Holistic Plan to Realisation/Commercialisation

1. The applicant should provide an estimate with reference to the scale below. ^{Note}

	1	2	3	4	5	6	7	8	9	10	11	12		
Inception of Idea	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Use by public sector/ launch into open market

Please indicate by putting '√' in a circle to show at what stage you are at presently. Please indicate by putting '*' in a circle to show at what stage you will be at upon project completion.

Stage	Scale
Inception of idea	1 – 2
Proof of concept	3 – 6
Production of samples/prototypes/tools	7 – 8
Conduct of trial schemes	9 – 10
Use in public sector/launch into open market	11 – 12

Note: The scale is not meant to be exhaustive but rather is a tool to facilitate deeper understanding of the project.

2. In the case of platform projects, please provide information in relation to the expectations of the industry sponsors on the R&D output and the business plan where appropriate. In the case of collaborative projects, please provide information in relation to the business plan for the project. It should address, inter alia, how to generate income after project completion (e.g. sales and revenue forecast), and whether there is any plan for further development of project deliverables.

ASTRI has already engaged three companies, 2 local companies and 1 from Mainland. They are interested in developing training goggle components and products. Also, a Mainland company, based in Sichuan province, is interested in commercialize the project results. The technology platform for portable visual training device, could be enhanced with additional features, such as myopia treatment software, memory training software, stroke recovery software, etc.

3. Please elaborate on the overall realisation/commercialisation plan, including activities to be undertaken to:

- disseminate the R&D deliverables;
- realise the application of the R&D deliverables in the public sector, i.e. Government Departments, public bodies, trade associations, charitable organisations; and/or
- market the R&D results in the commercial world, e.g. target users, marketing strategy including market segmentation and analysis of 4Ps in marketing (Products, Price, Place, Promotion), etc.

ASTRI will generate a number of IPs including patents and software copyrights in this project. Based on the patient statistics and volume projection, there is potentially a big market and thus good business profit in portable visual training goggle products. Seed project results have attracted three companies to provide cash contribution as advanced payment of NRE and licensing fees of the related IPs from ASTRI. The royalties received will generate income to ASTRI after project completion. In addition, ASTRI will market the technology platform to other electronics companies for providing new training patterns.

Three local hospitals show interest in trial test of the project deliverables, namely QE, QM and UC (Support letter enclosed).

Please see Annex 4 "Target Results and Benefits" for more information.

4. Please provide information in relation to the future positioning of the technology/product in the market and potential industry partners for technology transfer/manufacturing/sales, etc.

The worldwide statistics of patients with various vision problems are huge. In addition, in China, according to a survey carried out by the Chinese Amblyopia and Strabismus Treatment and Prevention Group, amblyopia affects about 3% of the general population. Ten million children and thirty million adults need treatment. The societal and economical loss associated with amblyopia is enormous in China. Improved detection and treatment are in great demand.

According to iSuppli, July 2010, the revenue of medical electronics product in China is 2.8 billion USD in 2007 and 3.3 billion USD in 2008. The growth rate in 2010 is expected to be 18.2%. It is forecasted that the revenue will be increased to 8.6 billion USD in 2014.

ASTRI has already engaged three companies, 2 local companies and 1 from Mainland. They are interested in developing training goggle components and products. ABC is a display component supplier working with product houses. The algorithms could be ported to other technology platforms. XYZ is a healthcare product company with sales and marketing channels. The technology platform for portable visual training device, could be enhanced with additional features, such as myopia treatment software, memory training software, stroke recovery software, etc. KLM is a consumer electronics design house planning to enter the healthcare market with the reference design. (Support documents enclosed)

SAMPLE

5. Please examine whether there are/will be competitors and if yes, analyse your strengths/weaknesses/opportunities/threats vs. theirs (i.e. SWOT analysis).

When compared with the electronic goggles available in the market, we cannot find any of them for visual training. The electronic goggles nowadays are for entertainment such as movie viewing and 3D-game. On the technical side, most of the others can provide only 8 bits gray-level resolution in monochromatic display. We aim to achieve higher resolution up to 10 bits for providing sufficient visual stimuli to the amblyopia and binocular vision patients.

6. Please indicate whether there is intention to apply for further phases of funding under the ITF upon completion of this project.

Yes. (Please provide details.)

ASTRI intends to apply for collaborative research projects under ITF to enhance the developed technology platform with additional R&D targeting other visual impairments and new applications.

No.

v. Relevance with Government Policies or in Overall Interest of the Community

1. Please explain how the R&D project can support major Government initiatives/policies (e.g. environmental protection and healthcare).

There are a number of people in Hong Kong with amblyopia (around 3% of the population, estimated by a scholar at CUHK), resulting long waiting time for treatment at local hospitals. The project would probably help to release the pressure facing the local Eye Clinics as the project deliverable, a pair of goggles with software, can be used at patients' home to carry out the needed treatment.

2. Please explain how the R&D project can provide opportunities for training of scientific/R&D personnel in Hong Kong (or facilitate exchange with R&D personnel outside Hong Kong).

To provide training for 10 project members in the R&D of embedded software, image processing, optical systems and system-in-packaging.

3. Please explain how the R&D project can contribute to the upgrading of the industry.

ASTRI will generate a number of IPs including patents and software copyrights in this project. This will attract a number of companies to license the related IPs from ASTRI. Also, this project will establish a good technology platform for portable visual training device, such as myopia treatment software, memory training software, stroke recovery software, etc.

A Mainland company, based in Sichuan province, is interested in commercialize the project results. This would probably help to promote the project deliverable in Mainland market.

4. Please explain how the R&D project can bring social benefit (e.g. creating devices to help Alzheimer patients).

The statistics of amblyopia patients in Hong Kong can be referenced to a preliminary amblyopia screening done by Order of St. John (OSJ) Children Amblyopic Fund in 2007. The research result conducted by OSJ shown that there are a total of 1,232 suspected amblyopia cases among 7,325 children. The occurrence rate is more than 15%.

VI. IP Rights and Benefit Sharing

1. Please explain whether the R&D will lead to patent(s) or the R&D deliverables will be protected by other IP rights?

- Yes. (Please set out plan for application for grant of patent and whether the R&D deliverables will be patentable.)

Name of Patentable Item	Country where Registration will be filled
Goggles with optical zoom and adjustable viewing angle	China and US
Goggles with integrated camera for automatic control	China and US

- No.

2. Please indicate whether background IPs/patents of a third party will be used in the R&D project, and if so, whether consent/licence for use of such IP has been/will be obtained.

- Yes. (Please provide details.)

- No.

3. Please set out the proposed ownership and/or right to use the IPs of the deliverables arising from the current project.

All IPs will be owned by ASTRI.

4. Please set out with justifications the sharing of IP benefits among all parties concerned.

N/A

5. For collaborative projects, the industry co-applicant may indicate whether consent will be given for the unrestricted use of the R&D deliverables under the current project for development for use in the public sector (including Government and public bodies, e.g. Hospital Authority) in Hong Kong in future.

N/A

VII. Management Capability

1. Please set out the organisational structure and division of labour among parties concerned to undertake/manage/market, etc. the project, both within and outside the lead applicant, industry co-applicant/organisations as fit.

Lead Applicant

ASTRI has strong technical capability in developing Bio-medical equipment. Over US\$ 1 million exclusive licensing fees has been collected as a result of one of the recently completed project under the Bio-medical Domain.

Industry Co-applicant

N/A

Other Related Parties

The Mainland collaborator based in Sichuan province is the 4th largest medical device manufacturers in Mainland China with more than 1000 staff with a strong market team of nearly 100 strong. This would help to support the commercialization of the project deliverables.

2. For collaborative projects, please provide details on the composition and work plan of the project steering committee.

N/A

3. Please provide details of all relevant parties involved in the realisation/commercialisation of the R&D deliverables, e.g. Technology Transfer Office of universities, research partners with successful track record or good international R&D marketing experience, etc.

Twenty prototypes will be evaluated by patients at the three local hospitals. ASTRI has already engaged three companies interested in developing training goggle components and products. ABC is a display component supplier working with product houses. XYZ is a healthcare product company with sales and marketing channels. KLM is a consumer electronics design house planning to enter the healthcare market with the reference design.

4. Please advise whether there are any ITF/non-ITF projects in the same/related area currently undertaken by the Project Coordinator and his/her research team members.

- Yes. (Please set out project title, project reference number, project commencement date and project completion date as follows.)

Project Title	Project Ref. No. (for ITF projects only)	Commencement Date	Completion Date
Feasibility Study on An Amblyopia Treatment System (ATS): Training Equipment and Procedure	ARD/048	12/2/2010	11/8/2010

- No.

5. Please indicate if Project Coordinator has sufficient capacity to handle the project satisfactorily (e.g. the number of R&D projects under his purview or any other significant commitments during the Project Period).

Yes

Declaration

I/We have carefully read and fully understand the 'Guide to Filling in the Application Forms of the Innovation and Technology Support Programme (ITSP) and the information in this form'.

I/We certify that all the information provided in this form is true, complete and accurate. In the event that any information is found untrue, incomplete or inaccurate in future, ITC reserves the right to revoke its approval of any application, grant approved be withdrawn and any payment made be refunded to Government.

I/We agree that information provided in this form will be used and/or disclosed by Government to relevant parties to process the application to conduct research and survey, and if the application is successful, to monitor the project, to exercise its rights and powers in relation to the project, and for other related purposes.

Lead Applicant

Authorised Signature For and
On Behalf Of the Lead Applicant

Name

Dr Tai-man CHAN

Post Title

R&D Director

Tel

852-34062983

Name of Lead Applicant

ASTRI

Date

18 Feb 2011

- Chop -

**Lead Applicant
Chop**

Industry Co-Applicant

Authorised Signature For and On
Behalf Of the Industry Co-Applicant

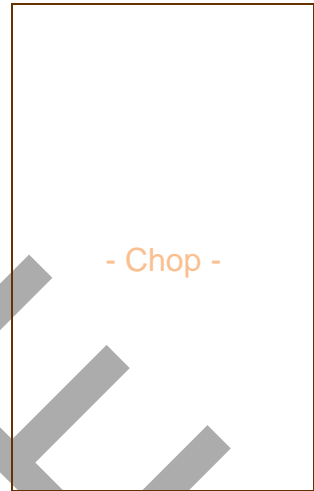
Name

Post Title

Tel

Name of Industry Co-Applicant

Date



**Industry
Co-Applicant Chop**

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