

BIRD FOUNDATION

ACCELERATING GROWTH THROUGH STRATEGIC PARTNERSHIPS

ANNUAL REPORT | 2018

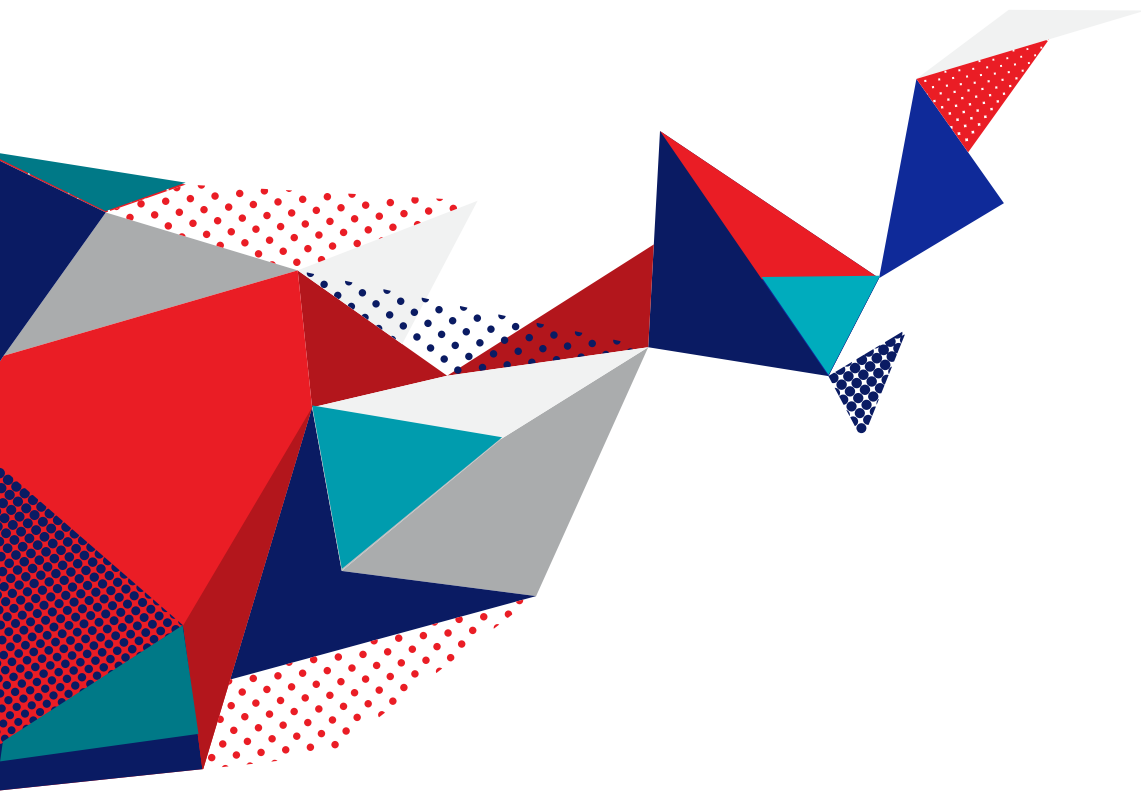
BIRD
Israel-U.S.
Binational Industrial Research
and Development Foundation





BIRD'S MISSION STATEMENT

To stimulate
promote and
support industrial
R&D of mutual
benefit to Israel
and the U.S.



THE BIRD FOUNDATION IN EXPANSION



This report summarizes another year of innovative new projects, exciting success stories from previously approved projects, numerous events and “matchmaking” efforts.

The BIRD Foundation’s main program, based on the endowment fund provided by the U.S. and Israeli governments years ago, will continue to be the core of the Foundation’s activities. It allows U.S. and Israeli entrepreneurs and companies of all sizes to achieve their cooperation

goals. The business potential of a proposed project, along with its innovation and the quality of the U.S.-Israeli partnership presented in the proposal, are the main criteria used by the Board of Governors to select awardees. Moreover, each proposal includes a section on economic and social benefits, inviting the proposing companies to emphasize the broader contribution and impact of their project.

The Foundation is rapidly approaching 1000 approved projects since inception.

A comprehensive data base of funded projects can be found on:

<http://projectsdb.birdf.com>

Starting in 2009, the BIRD Foundation adopted a strategy of establishing programs dedicated to specific sectors. The first such program, BIRD Energy, celebrated its 10th cycle in 2018. BIRD Energy is the implementation of a cooperation agreement between the U.S. Department of Energy (DOE) and the Israel Ministry of Energy (MOE), jointly with the Israel Innovation Authority (IIA). BIRD Energy funds projects on renewable energy and energy efficiency. In 2018, natural gas and other associated technologies were added to the list of topics covered under BIRD Energy. A performance study on BIRD Energy showed that following these awards,

the participating companies (both from the U.S. and Israel) have raised close to \$400M in funding. As a result of the success of BIRD Energy, the U.S. and Israel have decided to expand their energy cooperation, establishing the U.S.-Israel Energy Center. The DOE, MOE and IIA announced recently that the BIRD Foundation was selected to manage this new, exciting program, which will fund consortia of U.S. and Israeli companies and/or research institutions to jointly perform research and development, significantly accelerating deployment of technologies and leading to technology transfer from academia to industry.

In 2016, a program dedicated to innovative technologies for First Responders was launched. BIRD First Responders was established under an agreement between the U.S. Department of Homeland Security - Science & Technology (DHS S&T) and the Israel Ministry of Public Security (MOPS). This program was recently expanded to include additional homeland security topics. As a result, the name of the program was changed to BIRD HLS.

Although the management of several programs adds complexity to BIRD’s activities, there is a significant upside which is aligned with the Foundation’s mission of promoting and supporting joint U.S.-Israel research and development, for mutual benefit. These programs have added 75% to BIRD’s funding capability (not including the new Energy Center).

We will continue to work closely with U.S. and Israeli entrepreneurs, companies and research institutions, promoting and supporting joint U.S.-Israel innovation and making sure the available opportunities are well communicated.

At the end of the day, there is nothing more rewarding than receiving the following testimonial from a young entrepreneur and BIRD grantee:

“ **We expect this project to become a huge success, which could not have happened without the funding and support of the BIRD Foundation.** ”

BOARD OF GOVERNORS

U.S. Governors



Mr. Anthony Marcus

Director
Middle East and North Africa
International Affairs
Department of Treasury



Dr. Jonathan Margolis

Deputy Assistant Secretary
Bureau of Oceans, International Environmental
and Scientific Affairs
Department of State



Dr. Phillip Singerman | co-Chair

Associate Director for Innovation
& Industry Services
National Institute of Standards and Technology
Department of Commerce

Israeli Governors



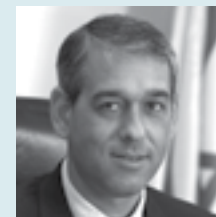
Dr. Amiram Appelbaum | co-Chair

Chief Scientist
Ministry of Economy and Industry
Chairman, Israel Innovation Authority



Mr. Shai Babad

Director General
Ministry of Finance



Mr. Shay Rinsky

Director General
Ministry of Economy and Industry

BOARD OF GOVERNORS

The Board of Governors meets semi-annually – every June in the U.S. and every December in Israel.

Joining the Board meeting on December 18, 2018, were Dr. Walter Copan, Under Secretary of Commerce for Standards & Technology and Director of NIST and Mr. Jon Harrison, Senior Advisor for Oceans and International Environmental and Scientific Affairs at the U.S. Department of State.



"I look forward to continue supporting the BIRD Foundation. I am grateful for the determination of this group to look to the future, to build on processes that are proven, but also not to take them for granted, and to continue assessing how we work together and create value. This is an era of open innovation and where collaboration models are evolving. For me, understanding the innovation system in Israel is a priority, because we benefit from one another, we learn from one another, and we grow together."

Dr. Walter G. Copan

Others who have acted on behalf of the Board during 2018

Ms. Yifat Alon-Perel | Israel Embassy, Washington, DC

Mr. Jared Banks | U.S. Department of State

Dr. Katya Delak | U.S. Department of Commerce

Mr. Gil Erez | Israel Ministry of Economy and Industry

Mr. Christopher Green | U.S. Embassy, Tel Aviv

Mr. Michael Molnar | U.S. Department of Commerce

Ms. Ilana Moyal | Israel Embassy, Washington, DC

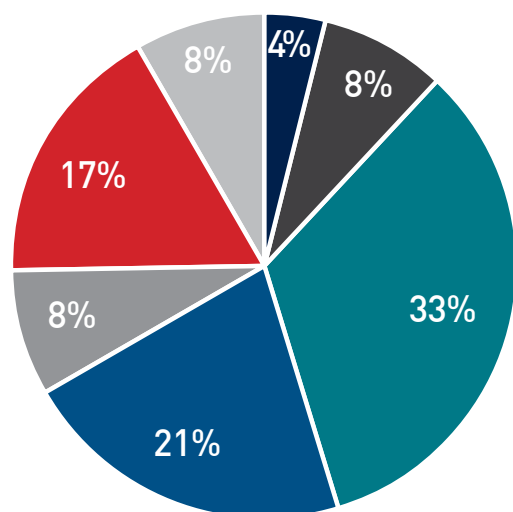
Mr. Israel Shamay | Israel Innovation Authority

Advisor to the Board

Dr. Harry Hertz

ACTIVITY SUMMARY

Statistics - 2018



Approved Projects

Sector	Total
Agrotechnology	1
Life Sciences	2
Energy, Water, Environment*	8
Communications	0
Electronics/Software	5
Healthcare IT	2
Homeland Security**	4
Other	2
	24

* includes 7 BIRD Energy projects

** includes 2 BIRD HLS/First Responders projects

Financial Summary - 2018

	Income				Grant Payments	
	Endowment		Repayments			
	Year (\$M)	Cum. (\$M)	Year (\$M)	Cum. (\$M)	Year (\$M)	Cum. (\$M)
2012	7	243	3	96	6	301
2013	8	251	3	99	8	309
2014	8	259	3	102	10	319
2015	7	266	2	104	10	329
2016	7	273	1.5	105	10	339
2017	8	281	0.9	106	7.4	346
2018	8	289	2.4	109	8.7	355

Income

BIRD's annual income is comprised of interest on the Endowment Fund and Repayments from companies who have participated in projects that were successful. This annual income is at a level that allows BIRD to meet all its financial obligations promptly.

Since its inception, BIRD has received interest of approximately \$289 million on the Endowment Fund and Repayments of approximately \$109 million from successful projects. Over that period, Grant Payments to companies have reached approximately \$355 million (all amounts are nominal, not adjusted to inflation).

Activity Summary - 2018

Direct Sales	Repayments	Grant Payments	Approved Projects		
2018 \$52 million	2018 \$2.4 million	2018 \$8.7 million	Full-scale projects (2018) 15 projects*	Mini projects (2018) 0 project	Total projects (2018) 15 projects
Cumulative \$5 billion	Cumulative (from 432 projects) \$109 million	Cumulative \$355 million	Cumulative 803 projects	Cumulative 179 projects	Cumulative 982 projects

*Not including BIRD Energy and BIRD HLS Program

ABOUT BIRD

The U.S.-Israel Binational Industrial Research and Development (BIRD) Foundation works to encourage cooperation between U.S. and Israeli companies in a wide range of technology sectors by providing funding and assistance in facilitating strategic partnerships for developing joint products or technologies.

BIRD supports projects without receiving any equity or IP rights in the participating companies or technologies. BIRD provides support of up to 50% of a project's budget, beginning with R&D and ending with the initial stages of sales and marketing. BIRD shares the risk and requires repayment only if the project achieves revenue.

BIRD's scope extends to Advanced Manufacturing, Agrotechnology, Cleantech and Environment, Communications, Construction Technology, Electronics, FinTech, Gas, Homeland Security and Cyber Security, Life Sciences, Nanotechnology, Semiconductors, Software, Water and other areas of innovative technology with commercial potential.

Since 1977, the Foundation has invested in over 974 projects, which have yielded direct and indirect revenues of more than \$10 billion. BIRD approves projects twice a year. Projects are evaluated by expert reviewers appointed by the Israel Innovation Authority (IIA) and the National Institute of Standards and Technology (NIST), U.S. Department of Commerce.

The Foundation manages the BIRD Energy Program focused on U.S.-Israel joint projects relating to renewable energy and energy efficiency industrial research and development. This program is the implementation of a cooperation agreement between the U.S. Department of Energy, the Israel Ministry of Energy jointly with the Israel Innovation Authority. BIRD Energy adheres to the same rules and procedures as BIRD.

In addition, the BIRD Foundation also manages the binational program, "BIRD HLS" a joint U.S.-Israel program to foster and support the development of advanced technologies for First Responders, technologies for securing critical installations, border defense, technologies in the use of unmanned aerial vehicles and cyber warfare capabilities for Law Enforcement. This program was established by the U.S. Department of Homeland Security (DHS) and the Israel Ministry of Public Security (MOPS) as part of the agreement between the Government of the United States of America and the Government of the State of Israel on Cooperation in Science and Technology for Homeland Security Matters. The collaboration agreement was designed to improve and enhance the preparedness of national rescue forces including fire, police and first-aid units, and their capabilities in the field. This program supports collaborations between U.S. and Israeli companies and allows for universities and research institutions to participate by partnering with a company/corporate entity.



APPROVED PROJECTS - JUNE - DECEMBER 2018

AGROTECHNOLOGY



Israel Co.	U.S. Co.	Title of Project
Juganu Ltd. Rosh Ha'ayin	Just Greens LLC Newark, NJ	Tunable White Spectrum SMART LED based Fixture for Automated Horticulture

ENERGY, WATER, ENVIRONMENT

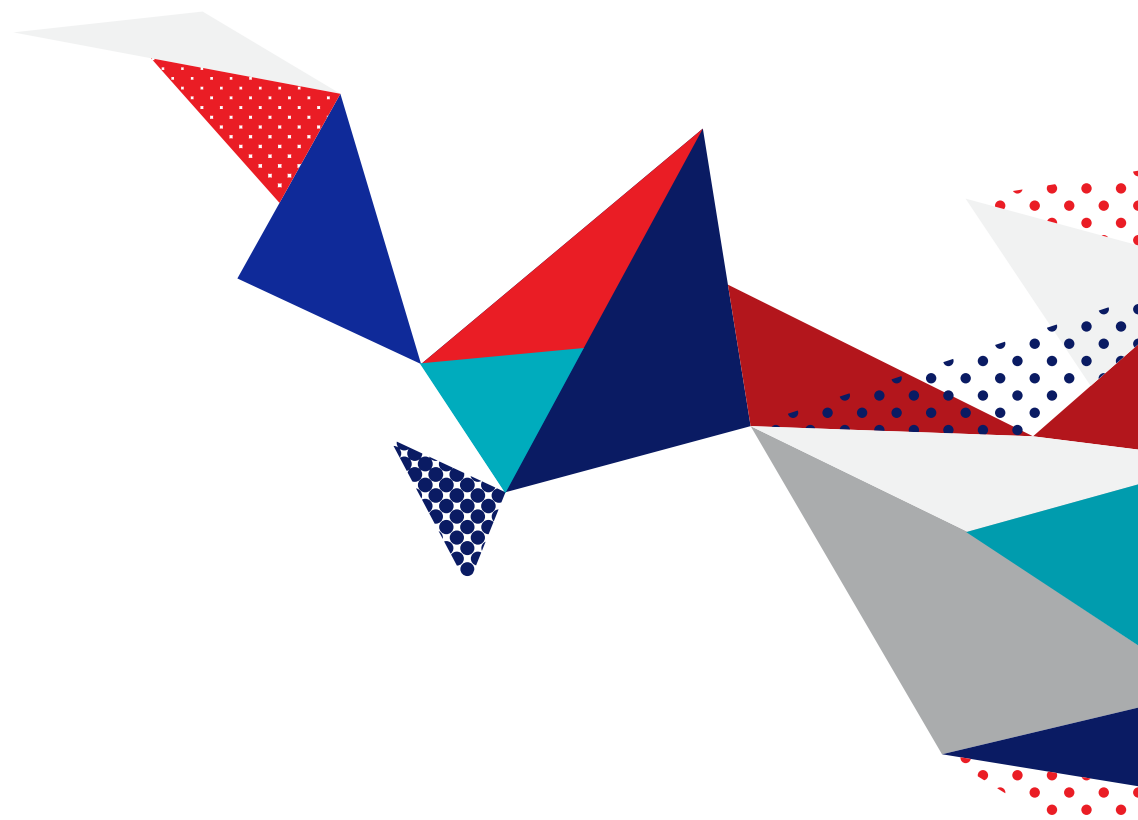


Israel Co.	U.S. Co.	Title of Project
4Cast Systems Ltd. Petach Tikva	Adelos Inc. Polson, MT	Upstream – Advanced Pipeline Disaster Prevention System

ELECTRONICS/SOFTWARE



Israel Co.	U.S. Co.	Title of Project
Compedia Software & Hardware Ltd. Ramat Gan	Samaritan's Purse Boone, NC	VolunteerVR – Virtual Reality Skills and Empowerment Tools for Disaster Relief Volunteers
Correlor Data Science Intelligence Ltd. Jerusalem	Advanced Energy Fort Collins, CO	Connected Power Data System with Analytics and Machine Learning Applications
HackerU Ltd. Ramat Gan	JustCode Inc. New York, NY	Cyber Security and Coding Assessment Platform
Manam Applications Ltd. Caesarea	AviSight Inc. Las Vegas, NV	Unmanned Aerial Systems Bridge Survey and Remote Analysis
Pixellot Petach Tikva	HockeyTech Needham, MA	Next Generation Multi-Angle, Automatic Remote System for Ice Hockey Game Production



APPROVED PROJECTS - JUNE - DECEMBER 2018

HEALTHCARE IT



Israel Co.	U.S. Co.	Title of Project
Somatix Technologies Ltd. Ra'anana	Catholic Senior Housing and Health Care Services Inc. Bethlehem, PA	SafeBeing – "Aging in Place" Lifestyle with Exceptional Peace of Mind
Oxitone Medical Ltd. Kfar Saba	Cigna Corporation Hartford, CT	Digital Health Prevention (DHP)

LIFE SCIENCES



Israel Co.	U.S. Co.	Title of Project
Leviticus-Cardio Ltd. Petach Tikva	Jarvik Heart Inc. New York, NY	Wireless Jarvik 2000® LVAD
270 Surgical Ltd. (formerly Mitos Medical) Netanya	FiberTech Medical Inc. Wellington, FL	Design and Manufacturing of a Surround Vision Scope

HOMELAND SECURITY



Israel Co.	U.S. Co.	Title of Project
MS Tech Ltd. Herzliya Pituach	Tekwave Solutions LLC Alpharetta, GA	Rapid Field Analysis of Chlorates, Perchlorates, Fentanyl and Synthetic Opioids using HF-QCM Nanotechnology Detection Sensors
ARTsys360 Ltd. Holon	ECSI International Inc. Clifton, NJ	3D-360 multi-sensor counter- UAV /Drone system

OTHER

Israel Co.	U.S. Co.	Title of Project
Diamond Valley Ltd. Ramat Gan	Ion Beam Milling Inc. Manchester, NH	Heat Spreaders for High Power Applications
DouxMatok Ltd. Tel Aviv	American Sugar Refining Inc. West Palm Beach, FL	Improved Flavor Delivery for Sugar Reduction in Food Applications

BIRD ENERGY

"BIRD Energy" is the implementation of a cooperation agreement between the U.S. Department of Energy, the Israel Ministry of Energy jointly with the Israel Innovation Authority, and the BIRD Foundation. BIRD Energy was launched in 2009.

BIRD Energy projects address energy challenges and opportunities of interest to both countries while focusing on commercializing clean energy technologies that improve economic competitiveness, create jobs and support innovative companies.

"BIRD Energy" adheres to the same rules and procedures as BIRD.

BIRD Energy Executive Committee

Members of the BIRD Energy Executive Committee include:

Mr. Robert Sandoli, Director, International Program Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy

Dr. Bracha Halaf, Chief Scientist, Israel Ministry of Energy

Mr. Israel Shamay, Senior Director of Americas Operations, International Collaborations Division, Israel Innovation Authority

Others who have acted on behalf of the Executive Committee during 2018

Dr. Gideon Friedman, Head, Renewable Energy and Electricity Grid, Israel Ministry of Energy

Dr. Ami Ben Shalom, Israel Innovation Authority

BIRD Energy Statistics 2009-2018

Approved Projects	Signed Projects ¹	Funding from Governments	Grant Payments ²	Repayments ³
49	36	\$33.69 M	\$17.06 M	\$1.25 M



1. Signed projects until December 31, 2018

2. Payments to projects, those that reached termination during the reporting period and projects that are in development stage



3. Repayments from 7 projects

Approved Projects - BIRD Energy - 2018


Energy Efficiency/Distributed Grid

Israeli Co. 	U.S. Co. 	Title of Project
Brightmerge Israel Ltd. Jerusalem	Introspective Systems LLC Portland, ME	Dynamic Grid Pricing with Edge Load Responsive Device Control
Foresight Energy Ltd. Hod HaSharon	The Solaria Corporation Oakland, CA	Distributed Energy Resource Management SW and Peer-to-Peer Trading
mPrest Systems Ltd. Petach Tikva	Southern Company Services Inc. (SCS) Atlanta, GA	mVVC - Integrated Primary and Secondary Volt VAR Control (VVC) and Conservation Voltage Reduction
Razor Labs Ltd. Tel Aviv	Exacter Inc. Columbus, OH	Grid Resiliency Forecasting

Solar

Israeli Co. 	U.S. Co. 	Title of Project
Beam Semiconductors Ltd. Rehovot	BannerSolar PBC Eagle, ID	60 GHz Active Phased Array Module for Wireless Gigabit Applications with Autonomous Solar Power Supply & Storage

Storage

Israeli Co. 	U.S. Co. 	Title of Project
Nostromo Ltd. Even Yehuda	Centrica Business Solutions US Inc. Bellevue, WA	IceBrick™ - Shifting the Electricity Grid's Peak Demand using Disruptive Ice-Battery Technology
Technion Research and Development Foundation Haifa	Primus Power Hayward, CA	High Energy Density Grid-Scale Storage Battery

BIRD HLS / FIRST RESPONDERS

Homeland Security Technologies (formerly NextGen First Responder Technologies)

Under the agreement between the Government of the United States of America and the Government of the State of Israel on Cooperation in Science and Technology for Homeland Security Matters, the U.S. Department of Homeland Security Science and Technology (DHS S&T) and the Israel Ministry of Public Security (MOPS) established a cooperative program to foster and support U.S. - Israel joint development of advanced technologies for Homeland Security.

"Homeland Security Technologies" follows the BIRD Foundation's rules and procedures.

BIRD HLS/ First Responders Statistics 2016-2018

Approved Projects	Signed Projects	Funding from Governments	Grant Payments ¹
7	6	\$6.01 M	\$1.89 M

1. Payments to projects in the development stage

Lead Program Representatives

Mr. Dave Hart, Acting Deputy Director, First Responders Group, Science & Technology, U.S. Department of Homeland Security

Mr. Yaron Kron, Chief Scientist, Head of Technology Division, Israel Ministry of Public Security

Other Representatives

Mr. Jared Banks, Office of Science and Technology Cooperation, Bureau of Oceans and International Environmental and Scientific Affairs, U.S. Department of State


Mr. Danny Biran, Manager, International Division, Israel Innovation Authority

Dr. Katya Delak, Office of International Academic Affairs, NIST, U.S. Department of Commerce

Mr. John Han, Science & Technology International Software Programs, U.S. Department of Homeland Security

Mr. Israel Shamay, Senior Director of Americas Operations, International Collaborations Division, Israel Innovation Authority

Approved Projects – First Responders – 2018

Israeli Co. 	U.S. Co. 	Title of Project
Elta Systems Ashdod	TLC Solutions St. Augustine, FL	Advanced Drone Mounted Search and Rescue System for Locating Victims
HiRiseTech Petach Tikva	Allstate Sprinkler Corp. Bronx, NY	First Responders Emergency Radio Repeater System for Existing High-Rise Buildings

BIRD Events in 2018

January 25, Tel Aviv
Advancing Innovation for First Responders Seminar



February 14, Tel Aviv
Stanley Black & Decker's Tech Council Delegation to Israel



June 13, Washington, D.C.
BIRD Reception at the Israeli Embassy



October 24, Tel Aviv
BIRD Energy Breakfast Seminar



November 8, Atlanta, GA
U.S.- Israel Advanced Technologies for HLS & First Responders



December 19, Herzliya
BIRD Reception at the U.S. DCM's Residence



EXAMPLES OF SUCCESS STORIES: ECONOMIC & SOCIAL IMPACT

 **Opgal Optronics Industries**

 **E.D. Bullard Company**

Gas Leak Management Solution

Development: an advanced Gas Leak Detection Camera, based on thermal imaging technology, for the detection of leaking gases in the exploration, transfer and refining processes in the oil, gas and chemical industries.

In December 2009, Opgal acquired all project rights and since then commercializes the product successfully. Presently, Opgal markets EyeCGas 2.0 compliant with EPA regulations and used globally across the industry for leak detection and repair (LDAR) compliance.

Approved in June 2007



 **Notal Vision**

 **Carl Zeiss Meditec**

AMD Home Monitoring Device

The development was a home monitoring device for AMD (Age-related Macular Degeneration) patients. Early detection is critical for timely vision saving treatment. Patients are being monitored remotely and alerts are generated ensuring prompt clinical attention. Consequently, treatment can be initiated almost concurrently to remote diagnosis, thus preventing sight loss.

The outcome of the project was the ForseeHome® AMD Monitor, which received FDA approval in early 2010.

The joint project, initiated in the early 2000's, was the first BIRD supported project that focused on Telemedicine.

Approved in June 2002



 **ColorChip**

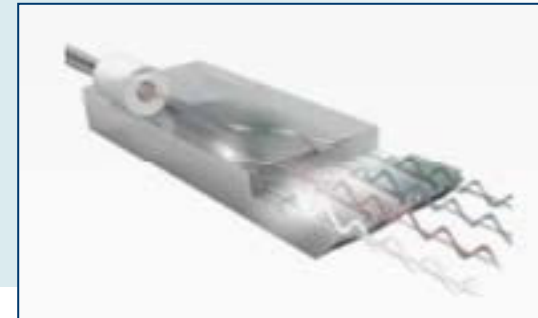
 **Molex**

Pluggable Transceivers

ColorChip and Molex developed a pluggable, high speed optical transceiver based on ColorChip's System-On-Glass™ PLC (Planar Lightwave Circuit) integrated optics and Molex's mechanics.

It allows vendors to design mega datacenters with higher port density and lower power consumption, simplifying installation while maintaining the same high-speed, small-form factor product.

Approved in June 2007



BIRD REPRESENTATIVES IN THE U.S.

Atlanta, GA
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Chamber of Commerce, S.E. Region)

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ECONOMIC MISSIONS WORKING WITH BIRD IN THE U.S.

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BIRD

Israel-U.S.

Binational Industrial Research
and Development Foundation

