REMOTE SPARK

INDUSTRIAL REMOTE WORKER TASK SUPPORT

MIXED REALITY COMMUNICATIONS PLATFORM FOR HOLOLENS 1 & 2
Why does it matter?

**Better Leverage Experts**
Allow subject matter experts to guide frontline workers, without traveling on site.

**Improve Knowledge Transfer**
Train frontline workers on how to perform a task while they are doing it.

**Reduce Equipment Downtime**
Allow frontline workers to troubleshoot and solve problems like specialized experts.

**Reduce Errors**
Decrease production non-conformity and reduce rework.
RemoteSpark is a capability multiplier for teams to improve decision making and remediate technical failures, or complex situations beyond the experience of on-the-scene personnel.

**Accelerating your decision action cycle**

- **Observe**: Get on site quicker by seeing what the operator sees
- **Orient**: Identify the issue and assemble the resources rapidly
- **Act**: Conduct tasks as a timely, incisive & efficient team
- **Decide**: Create options, communicate effectively

**Why does it matter?**

- **Clarity through common visualization**
- **Certainty of comprehension**
- **Reduced cognitive fatigue**
- **Decisive collaboration**
**Key Differentiators**

- **Drag and drop hologram conversion**: Drag and drop 3D files, MS Office and PDF documents to convert to 3D holograms.

- **IoT enabled**: Can tap into existing data to create holographic digital twins.

- **Convert CAD files**: Easily convert CAD assets to multi-step, animated, and interactive holograms.

- **Low CPU Consumption**: CPU usage is 50-60%, with video call, IoT, and 3D Holograms.

- **Low Bandwidth**: Minimum bandwidth of only 256K is required for MR calls, including IoT and 3D Holograms.

- **Platform Stability & Security**: Industrial-grade security and reliability. Operated both in cloud and on-premise.
Commander RCN Vision

Project MiRRAS

- **Thought Leadership**
  Develop rationale for adoption of Augmented Reality (AR) with integration of IoT, AI. End state: Defence Cloud enabled AR support for ships crews in numerous areas including situational awareness and maintenance task support

- **Reduce Operational Downtime**
  Solve problems quickly with the resources available on the job site. Expert guidance delivered remotely

- **Enhance Knowledge Transfer**
  Enhance knowledge transfer internally with RCN and also with OEMs

- **Reduce Cognitive Burden for crews**
  Enhance Situational Awareness while reducing cognitive fatigue. Reduce stress by providing certainty of next action. Enhance decisive action through collaboration

- **Deliver Industry Leading Solution - within constraints**
  Secure, end-to-end communications with data encryption in use and at rest
  Very low bandwidth requirements
  Animated reference material
  CAD/GIS data to Hologram conversion with IoT
  Deployed on trusted front and backend
RemoteSpark and HoloLens

Kognitiv Spark leverages best-in-class security in Windows 10 and Microsoft Azure, in combination with our own security management practices.

RemoteSpark Client Layers of Security

- Full Device Encryption
  It's recommended that the Windows 10 PC/HoloLens hosting the RemoteSpark Client has BitLocker enabled to enforce full-disk encryption.

- Device & Network Authentication
  It's recommended that the device requires authentication by Azure Active Directory (AAD) or Active Directory (AD) account. Two-factor authentication can be enforced, as well as organizational password policies. To authenticate into the RemoteSpark application, an AAD or RemoteSpark account is also required. Windows Hello support will be offered for HoloLens 2 devices.

- MS Verified Windows 10 App
  The RemoteSpark Client Application is verified by Microsoft for security and quality issues before being available in the Microsoft Store.

- Hardened Executable with Tamper Detection
  Kognitiv Spark has taken further measures to harden the binary executable against unauthorized modifications and will not execute if changes to the binary are detected. Unauthorized activity will create a notification to the current user and Kognitiv Spark.

Network Activity

All network activity between the client, server, and peer to peer (video calls) are always encrypted.
Cloud or On-premise
The RemoteSpark Server system runs either in the Microsoft Azure Cloud or a sub-set of the system can be run on the customer's premise using Azure Stack or Windows Server. Azure has over 70 security certifications.

Firewalls, Monitoring and Alerting
The system is protected by the layers of Azure Firewalls and other network protection systems. Activity is logged for security and performance monitoring. When defined thresholds are reached, Kognitiv Spark is alerted of the anomaly and action initiated. When running on Azure Stack, the logging and alerts will need to be designed and monitored by the customer's on-premise staff.

RemoteSpark Server Services
The RemoteSpark Server Services is a collection of application bars developed by Kognitiv Spark to support the RemoteSpark Client. Developers do not have access to production systems.

Encrypted Content
All content stored and generated by RemoteSpark is stored on Azure Storage and is encrypted at rest and transmitted via TLS. The files are encrypted with 256-bit AES and the service is FIPS 140-2 compliant.

Application Data
The data storage used by RemoteSpark is encrypted at rest. Only the RemoteSpark Server can access the data on behalf of the client and it has no access to the public internet.

STUN/TURN Servers
These servers facilitate the audio/video call. They help determine if the video call can be directly connected between two peers or needs to be relayed through the TURN server. 90% of all video calls are connected directly and the video and audio do not go through any Microsoft or Kognitiv Spark servers. When a call requires a TURN server, the video signal is not stored at any time and the encryption/decryption keys are not accessible by the TURN server, so the TURN server is only a relay of encrypted data.

Application Access Key in KeyVault
KeyVault is a service that stores our application secrets. Microsoft does not have access to our secrets. KeyVault uses nCipher nShield which is a leading global provider of data encryption and cyber security solutions to the financial services, government, and technology sectors. With a 40-year track record of protecting corporate and government information, nCipher Security cryptographic solutions are used by four of the five largest energy and aerospace companies. Their solutions are also used by 22 NATO countries/regions, and secure more than 80 percent of worldwide payment transactions. The HSM units are FIPS 140-2 Level 2 validated. This service is not available in China.
Our Value as a Partner

Kognitiv Spark's partnerships are robust and symbiotic, tying together world-leading hardware providers, educational institutions, and industry advocacy and research organizations.

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**Canadian Content Value**
100% CCV for Kognitiv Spark software

**Credible Emerging Tech**
Highly relevant emerging technology, with proven operational impact, in demand by RCN, CCG, & DND

**Global Leader**
Award winning New Brunswick based company with leading global competencies*

**R&D Partner**
Established Canadian R&D partners UNB, NBCC

**Key Industrial Capabilities**
Alignment with several DND KICs

**Committed Partners**
Committed to supporting innovation and skills development, especially new course content creation for AR/MR at UNB and NBCC

*Recognized by Microsoft as global leader and under the Mixed Reality Partner Program (MRPP), and only AR/MR company partnered with HPE*