Build a New Collar Workforce with Riley

Helps workers who are blind and visually impaired do jobs previously beyond their reach

We live in a vision-driven world. Skills needed for basic independence - getting ready for work, learning the tools of one's trade, recognizing a coworker with a happy smile - so many things depend on vision. A world without sight presents many challenges for the 253 million people who are blind or visually impaired, and has left this segment of the population with the highest unemployment rate of all people with disabilities (World Health Organization Fact Sheet October 2017).

The world is rapidly becoming more visual. With the introduction of Augmented Reality (AR), a hologram on a barista counter could show how to prepare a drink. Instructions could pop up in an animated display in an assembly line. As this amazing technology evolves, we risk leaving behind people who cannot see.

If we fail to step in and direct the future, we risk creating an even larger gap. What can we do to prevent this? Can we use powerful new technology not to leave people behind, but instead to enable them to do things they were not able to do previously?

By considering the most underserved and deserving people first in designing our new world, such as those people who are blind and visually impaired, we can use the cognitive power of Watson to blaze the trail for a "new collar" workforce. A new collar workforce is one in which people can do jobs not previously possible, through the use of artificial intelligence.

Our award-winning solution: Riley.

Riley uses a smartphone or tablet - combined with the cognitive intelligence of IBM Watson - to provide verbose descriptions that can help someone to better visualize their surroundings.

There are two components to Riley - the Riley app and the Riley server. The Riley app is available for download in iTunes and Google Play. The Riley server is available through the IBM Marketplace, or direct from Kilroy Blockchain.

The Riley app

The app has two main features, What's That and Look Around (see Figure 1). What's That analyzes user photos, and Look Around is based on the users' geolocation. When a query is submitted, the Riley server interacts with Watson Content Hub and uses Watson Visual Recognition to provide details about what it recognized based on data that has been verified and stored. This process enables a quick, consistent and reliable experience.

The Riley server

The Riley server can become a visual subject matter expert on your own products. For instance, Riley can be trained to recognize and distinguish specific types of produce, equipment in a coffee bar, or even parts on an assembly line. Riley can describe your own environment in a verbose, highly illustrative manner.

The award

IBM created the Watson Build challenge to spark development of innovative cognitive solutions. In 2017 - its first year - the competition attracted hundreds of IBM Business Partners from around the world who produced nearly 400 business plans for Watson-based solutions. With our solution, Riley, we were chosen as the geography winner for North America, and one of just eight global finalists.

Artificial intelligence that puts humanity first.

Artificial Intelligence creating independence

Artificial intelligence (AI), such as the cognitive intelligence used in IBM Watson, can be used to help solve problems faced by those who cannot see. Riley is an AI and blockchain application that serves the blind and visually impaired by allowing them to "see" their real world through an interactive audio description of their surroundings.

In her 2015 TED Talk, blind IBM Fellow Cheiko Asakawa stated that her biggest goal in life was to become more independent. Like Cheiko, many other blind and visually impaired people share this goal. Riley will help people to live a fuller, richer life as they can better enjoy the world around them.

The inspiration behind Riley

I am a software developer as well as a dragon boat coach. This past spring, I coached a team from the Texas School of the Blind and Visually impaired, the Wildcats.

During these sessions, there was a lot of waiting around. Like most other young adults, the Wildcats were using smartphones and headsets. Unlike most other young adults, they could not look around the beautiful park and enjoy the scenery.

At the time, I was learning Watson, so I thought, "why not solve this?" So in response to the 2017 Watson Build challenge, our team at Kilroy

Blockchain leveraged the power of IBM Cloud and Watson to do just that.

The team behind Riley

Riley was built through the love and devotion of a talented team that cares. Riley was entirely bootstrapped and was made possible through the dedication of our team and esteemed advisors, and the generous help of IBM.

Cutting-edge technology solving age-old problems.

How Riley works.

We like to think of Riley as "brain candy." To imagine what Riley does, think about the last time you looked at a dog, or a flower. Or remember the last time you stopped to enjoy a beautiful park. This kind of experience can now be brought to people who cannot see. The app has two main features. One feature analyzes user photos and the other looks around based on user geolocation. When a query is submitted, the Riley server interacts with Watson Content Hub and uses Watson Visual Recognition to provide details about what it recognized based on data that has been verified and stored. This process enables a quick, consistent and reliable experience.

Blockchain as a source of truth.

Since the descriptions for the Look Around feature are crowdsourced, we will use IBM Blockchain to lock down the verified descriptions, so people using the Riley app cannot be spoofed.
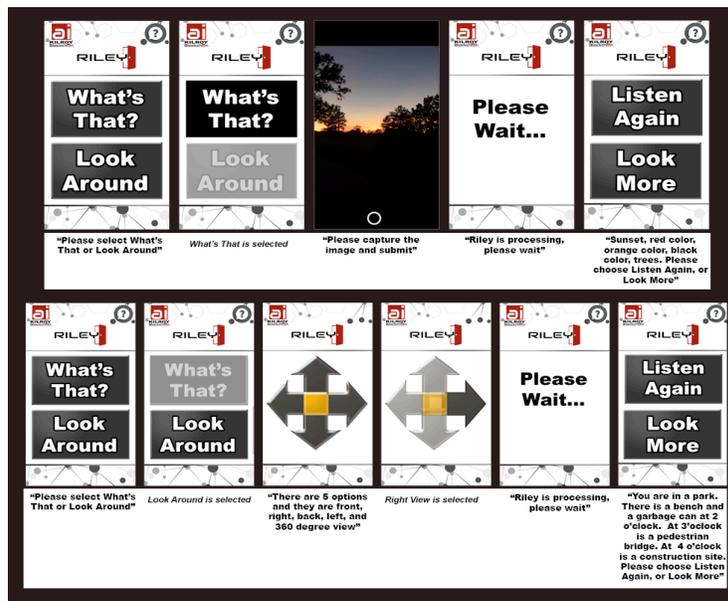

Figure 1: Riley running on an iPhone, showing "What's That" in the top row, and "Look Around" in the bottom row. Both can be fully customized and trained for subject matter specialities.

Riley and Watson lead the way to a new collar workforce.

We are working with the Texas School for the Blind and Visually Impaired to perform pilot tests of Riley. This includes determining how Riley can be used to help employers develop a "new collar" workforce - enabling workers to do jobs that were impossible for them in the past - now possible through the use of AI.

Riley in the future.

Riley's roadmap includes more options for the user interface including speech-to-text and large swipe motions. It also includes weather awareness (there are puffy white clouds in the sky and the wind is blowing them slowly to the west) and mobility technology borrowed from self-driving vehicles and robots.

Get started with Riley.

The world needs thought leaders who will lead the way in using AI for good. Interested in helping people live happier lives, and at the same time build your own new collar workforce? Riley can not only help to overcome sight-related barriers, but also other barriers such as language or subject matter expertise. Explore how the power of Riley can eliminate barriers in your organization, and help you take the first step of using AI to build a workforce that can do jobs that were not possible before.

Riley has a pay-as-you-go pricing model, so there's no reason to wait. To get started with Riley for your organization, contact us at info@kilroyblockchain.com.