Protecting your IP with MoveIt Studio

Getting the benefits of MoveIt Studio while protecting your intellectual property

We know that building and protecting intellectual property is critically important to our customers. Our commitment is to do exactly that - 100% full stop. In this whitepaper, we discuss how we have found great collaborations with our customers in co-developing, and fully handing off, application development with your own internal engineering teams.


Background: Why MoveIt Studio?

Before diving into IP issues, here's a reminder of the many advantages of building on the MoveIt Studio Platform:

- Dramatically shorten the time to create and deploy your application. We're seeing an average of 9 months taken off the deployment time.
- Commercial grade reliability, infrastructure, and support out of the box
- Benefit from our 10+ years of experience building advanced robot arm applications

MoveIt Studio

An Industry Analogy

MoveIt Studio is similar to a video game engine such as Unity or Unreal, which are both popular platforms in the gaming industry for quickly developing advanced 3D applications. Those platforms consist of many tools for creating immersive 3D worlds, character AI, and story lines. Game development shops and independent developers can then create new games that they sell to the end consumer. Each video game they ship to a consumer contains a *core runtime component* from the Unity/Unreal platform that provides the underlying "gaming engine" functionality, while the game developers own all the game-specific IP built on top of the platform.
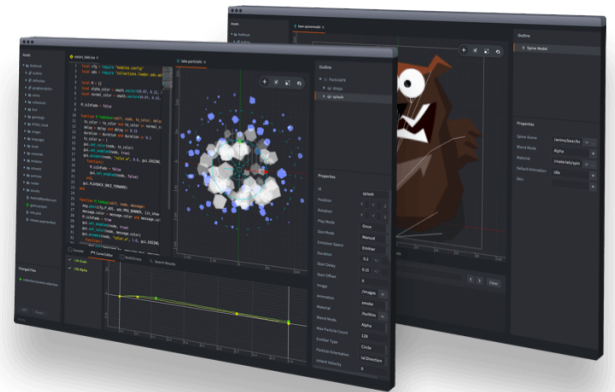
Similarly, MoveIt Studio is both a set of developer tools for creating and debugging robot applications, as well as a *core runtime component.* We call this runtime component the MoveIt Studio Runtime. Our customers build amazing robotics applications on top of the Runtime, which they fully own and ship to their end customers.

High Level Diagram of IP Ownership

The below figure gives a conceptual understanding of what MoveIt Studio is and how it fits into your application's IP. The two dark brown boxes indicate PickNik's IP, and all the yellow boxes indicate our customer's IP:
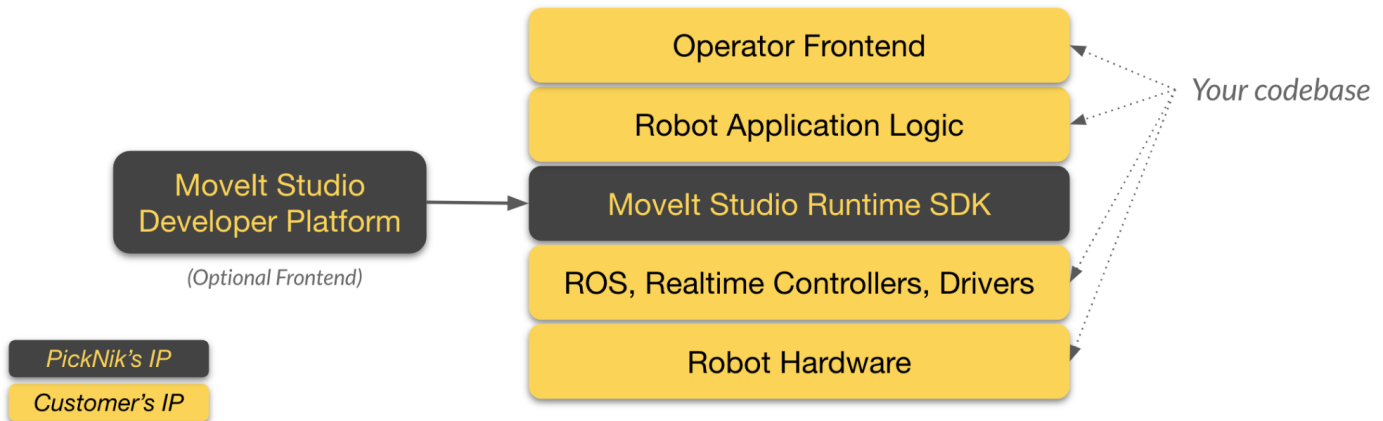
Protecting Your Application-Specific IP
All integrations to your robot hardware and application-specific configurations are your intellectual property. This includes:

- Your Custom and In-House Developed Hardware
  All hardware and sensors are your Intellectual Property.
- CAD files and URDFs
  All 3D models of your robot hardware, sensors, workcell, or environment belong to you, including the Universal Robot Description File (URDF).
- Hardware Drivers/Firmware and Low Level Control
  While we can help you develop your firmware and real-time controllers, using software libraries such as ros_control, this IP belongs to you.
- Custom Behavior Plugins that you Create
  MoveIt Studio has an extensive plugin architecture that allows you to write your own C++ and Python nodes (aka Behaviors) for developing your application-specific functionality. All software you develop for these plugins you own. On the other hand, plugins that PickNik develops belong to us, in most cases.
- External Coordination Software
  Your application may have very high level software that manages commands sent to MoveIt Studio via our C++/Python SDK. If Behavior Trees do not cover all of your application's coordination needs, use your IP for those types of coordination.
- Your Process Trade Secrets
  Recipes, formulas, data sheets, or other process-specific information that may be used to customize MoveIt Studio to accomplish your application's tasks belong to you.
- Customized ML Models and Training Data
  PickNik uses various foundational models to create machine learning, segmentation, and perception applications for our customers. The resulting trained model and data used for training belong to you.

How your team builds on top of MoveIt Studio

MoveIt Studio is a powerful robotic manipulation SDK with an optional developer frontend. It provides the platform for your team to build a huge variety of applications on top of it, with enhancements being added every month.

Our typical engagement is for PickNik to collaborate with your team to gather application requirements and understand what the MVP is that you need to demonstrate. Our engineering services team will then create the initial, example application for you and then hand off that application, including all its configuration files, to your team for further modification and iteration. This handoff includes a custom, private git code repository (often on Github or Gitlab) that we create specifically for your project, where all your intellectual property is stored. This cleanly separates our product from your IP.

After the initial training and hands on experience with MoveIt Studio, you will be able to be self-sufficient. Your team can modify or create new applications, as well as onboard new types of hardware, with minimum support or guidance from PickNik.

Clearance and Export Control

For certain organizations, particularly in the defense or space industries, export control is an important topic of concern. We have used MoveIt Studio extensively with several aerospace companies, and we have experience complying with ITAR and EAR restrictions. In particular, we can create a representative but simplified application that contains no sensitive information, then transfer to your internal team that is operating under export control restrictions to continue development for your final implementation. This is a great way of benefiting from modern robotics technologies in sensitive environments.

Conclusion

PickNik seeks to accelerate robotics adoption, particularly in unstructured environments, by providing a re-usable, modular, and general purpose platform for robotics. Our goal is to deliver the MoveIt Studio platform to our customers to enable rapid development of commercial grade applications while also enabling you to own, develop, and maintain your intellectual property.