The aim of the project was to track a curling stone as it progresses across the ice sheet. This is intended to track the stone position both in the current frame and as a position relative to the whole sheet. This has applications in the broadcast of curling where networks can highlight a stone’s progress on an animated sheet to make viewing easier and allow for more detailed analysis of shots. This also offers potential as a tool to implement more advanced programs which could analyze the effect that sweeping has and offer shot prediction.

The algorithm falls roughly into four steps: Rectification, Frame Tracking, Stone Tracking, and Localization. Rectification is used to remove the perspective in the image induced by the camera angle. Frame tracking finds known ice features within the frame. Stone tracking finds the location of the stone on the screen. Localization combines these together to give the stone’s location in relation to the entire curling sheet.

This work could be extended by interfacing to a motion prediction program. Given the program’s ability to track the current stone location within the ice rink, a simple curve fitting program would allow prediction of the stone’s path. Further work and analysis of more curling videos would allow for a more exact determination of the effect that sweeping has on the stone. This type of data could conceivably be used to implement a program for a mobile device which helps the skip determine when to call for sweeping. This program would offer predictions of where the shot will land with and without sweeping and allow them to make a more informed decision about whether to sweep or not.