Component Locator: A Step Toward Automated Car Repair

If a mechanic needs to replace a part they do not know the location of, they refer to a computer system – away from the car they are working on. If a do-it-yourselfer wants to locate a part, they are often fumbling between their manual or computer and their car. I created an application (app) to make life easier for both of them.

*The user experience:* Once the app is launched, the mechanic selects the car and part from the index, then holds the iPad above the engine. Locator displays a live video feed from the iPad’s camera and determines its location relative to the engine. Locator overlays a circle on the screen to indicate the location of the desired part. The user can tap the info button to receive additional information about the part.

*The technical end:* An external database was created to store engine tracking data, part locations, and details. The app compares the tracking data, along with gyroscope and accelerometer readings, to live video feed from the iPad’s camera to calculate the device’s location and orientation relative to the engine. From that information, the app calculates the onscreen position of the part and encircles it. Part detail is accessed from the database via the info button.

Testing utilized a Lego engine first, and then actual car engine compartments. Successful performance was repeatedly tested, and recorded via screen shots and photos.