ENGG1100 – First Year Team Project – Search and Rescue Robot

UQ’s ENGG1100 is the very first course that all engineering students at the university take. Our team chose to partake in the search and rescue robot project. The task was to create a robot using the Arduino Uno that would search a test field for small magnetic plates that may or may not be magnetically charged. If the plate was charged, representing a “phone signal” of someone trapped under rubble, the robot would need to dispense a flag on top so that search and rescue teams could quickly find the tapped person. A video of our robot in operation is shown below.

Unfortunately, on the day our robot had one of its hall effect sensors broken which meant we were reduced to only half the detection capability we could have had. As a result, the robot successfully detected one target but failed to find another before the allocated testing time expired.

My Contributions

For this project, I contributed some small parts of the code mainly related to driving around, the start button (which had to choose between the two operation modes, normal and demonstration) and obstacle detection. In addition to this, I designed the flags, and the mechanism we used to drop them. The design used two servos, one to release the flags and the other to control the position of where the flag would be dropped. This design allowed us to precisely drop the flag on the desired location without having to move the entire robot. As the drive wheels were uncensored, we could not precisely control the movement of the whole vehicle, which necessitated this design.