

```

118 /*****
119 *****/
120 * Functions are defined below:
121 *****/
122 *****/
123
124 int readEncoderAB(int encoderPinA, int encoderPinB){
125     int n = 0;
126     int RPM = 0;
127     uint32_t time = millis();
128     while(millis() < (time + encoderSampleTime)){
129         .
130         n = digitalRead(encoderPinA);
131         if ((encoderPinALast == LOW) && (n == HIGH)) {
132             if (digitalRead(encoderPinB) == LOW) {
133                 encoderPos--;
134             } else {
135                 encoderPos++;
136             }
137         }
138         encoderPinALast = n;
139     }
140     encoderPos = 0;
141     RPM = (((encoderPos*(1000/encoderSampleTime)*60)/400)/5); //In terms of wheel RPM
142     return(RPM);
143 }
144
145 int readEncoderZ(int encoderPinZ){
146     int RPM = 0;
147     int Z_Rev = 0;
148     long time = micros();
149     long no_time = 0;
150     //Serial.print("Begin Read");
151     while((digitalRead(encoderPinZ) == LOW)&&((no_time = (micros() - time)/1000) < 125)) {}
152     while((digitalRead(encoderPinZ) == HIGH)&&((no_time = (micros() - time)/1000) < 125)) {}
153     long time1 = micros(); //Take a timestamp
154     while ((Z_Rev >= 0)&&(Z_Rev < 20)&&((no_time = (micros() - time)/1000) < 125)) { // Turn 10 Revolutions
155         //Serial.print("Reading");
156         if ((digitalRead(encoderPinZ)) == LOW) { //Test for high pulse
157             while (((digitalRead(encoderPinZ)) == LOW)&&((no_time = (micros() - time)/1000) < 125)) {} //Wait for a pulse
158             Z_Rev++;
159         }
160     }
161     long time2 = micros() - time1;
162     RPM = ((Z_Rev + 1)*1000*1000*60/time2)/5;
163     if(RPM > 750){
164         RPM = 0;
165     }
166     if(no_time > 150){
167         Serial.println("NO_TIME_NO_TIME_NO_TIME_NO_TIME_NO_TIME_NO_TIME_NO_TIME_NO_TIME_NO_TIME_NO_TIME");
168         RPM = 0;
169     }
170     return(RPM);
171 }
172
173 //*****
174 //*****
175

```