IoT Project: Automated Chicken Coop

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Introduction

I would like to automate and remotely control some of the aspects of my chicken run! Unfortunately, it has often been the case where someone forgets to close their gate at night, and the fox gets in. I've been thinking of using an Arduino as a solution to this very real problem we have, and I think it would be a good project for the assignment.

Proposal

The main objective is to use the Arduino MKR WiFi 1010 board with the IoT carrier, to record and store data which will be used to control the closing of the gate automatically or remotely. I will use sensors to count chickens walking past a point, as well as something like an LDR to record the level of daylight which may also cause a reaction. I'm also thinking of putting a small camera inside the coop which could take a picture for confirmation that the chickens are in for the night!

I would then use frameworks such as ThingSpeak or BLYNK to present the information to a mobile app where a user can see details like the gate's status, the number of chickens in the run, estimated time of sunset etc. I would also like to implement the user to be able to close the gate remotely at any time.

With an electrical background, I should be comfortable with the wiring of the prototype model for the assignment and would hope to fully deploy the project afterwards. The big step into the unknown for me on this will be the communications and I'm looking forward to diving into it.