ECE 411 Industry Design Processes
Keypad Door Lock Initial basic prototype

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We wanted to start working on getting the different components together and connecting them on a

breadboard to see if we need to change anything on our PCB and to get an understanding of how those different components would be physically connected in a prototype, not just in KiCAD schematics.

This is not a complete prototype. This is a very early prototype using the components we have so far. We already ordered all the components we anticipate needing for our project and we received most of them though not all of them yet.

In this prototype, we are using an Arduino Uno since we don't have a PCB yet and Arduino Uno R3 happened to be very a very convenient choice for our early prototypes. We also used Arduino in this prototype because we haven't received the serial connectors to the Atemega328P-PU microcontroller yet and these ICSP and FTDL are necessary to program and initialize the Atemega328P-PU microcontroller.

In our prototype we are using a basic 4x4 keypad for entering, setting, and resetting the Pin, we ordered an additional 3 keypad components for prototyping, and we plan to implement them in our final enclosure design as well.

In this prototype, we are using a relay board that is different from the one in our schematics since we haven't received our relay boards yet and wanted to try to still use a relay in our prototype. The relay board in the picture has relatively comparable specifications but it most probably will not be the one implemented in our final prototype and design.

We built this very basic prototype multiple times and wired things differently to try to make sure we are not making any naïve wiring mistakes. We connected the Arduino R3 board to a PC and tried to upload some open-source code which we slightly edited just for testing and prototyping purposes. At this point, we didn't get exactly what we were expecting but at least we know what we need to work on.

We very very carefully powered our prototype circuit and did not burn anything yet! This was a very good first step! We have some very basic breadboard prototype functionalities which we were expecting and are happy to have but we still have much work to do on our code as well as connecting the actual components to the prototype once we received them! Hopefully by Saturday 11/5/2022.

11/3/2022

Team 5