**Brief CENG Capstone Project Charter**

**Project area:** / 

1. Facilities: e.g. Bicycle Rental/Parking Lot/Vision System

2. Building Automation: e.g. Greenhouse/SolarPanel/Home

3. Consumer: e.g. Entertainment Protocol DMX/Baby Monitoring Project

4. Education: e.g. Robust Hackable Educational Project

5. Robotics: e.g. Control/Navigation/Dashboard

6. Health and Wellness: e.g. Wearable

**Project Title:** **Smart Home Box**

Sponsoring Industry and Personnel:

Hours contributed:

Number of full-time employees, year established, private or not-for-profit:

Value of equipment or access to equipment provided:

FAST contribution:

**Names of Students Involved in Project:**

Alen Alimkhanov (n01291955):

* Arduino IDE
* Android Studio
* Parts Kit
* Arduino
* Temperature/ Humidity Sensor
* Motion Sensor
* Sound Sensor
* Water Level Detection Sensor
* Servo Motor
* Stepper Motor
* Resistors
* Jumpers

Heorhii Nechyporenko (n01329655):

* Arduino IDE
* Geany IDE
* Android Studio
* Fritzing
* Parts Kit
* Stepper Motor
* Resistors
* Jumpers

Mykyta Nechyporenko (n01329656):

* Arduino IDE
* Android Studio
* Fritzing
* Parts Kit
* Resistors
* Jumpers

Nikita Smirnov (n01287334):

* Arduino IDE
* Android Studio
* Fritzing
* OpenCAD
* FreeCAD
* Parts Kit
* Resistors
* Jumpers

[Github Repository Link](https://github.com/n01291955/SmartHome) (https://github.com/n01291955/SmartHome)

Hours per student: 14\*3=42 in class hours, 14\*3=42+ outside of class.

Supervising Faculty: School of Applied Technology

Hours per faculty: 14(3/20\*3)=6.3 in class, 14(1.05+1.49)/20\*3=5.334+ outside of class.

**Executive Summary/Description of the Project (75 to 100 words):**

SmartHome is an electronic home utility that assists in controlling the house and security, and is controlled and monitored from a smartphone .

When a user is outside of their home via app they can monitor/manage home lights and other house utilites. This project’s minimal package includes gas sensor, temperature sensor, water sensor and RFID module. Further development aims to add camera (CCTV) and other sensor/security features.

Scope: Prototype that is not to be left powered unattended.

**System Requirements:**

* Gas sensor module
* Temperature sensor module
* Motion sensor module
* RFID module (card and card reader)
* Camera (during late development)
* Stepper motor (during late development)
* Fan blade (during late development)

Design approach: Raspberry Pi<->Firebase<->Android

Mandate: Self funded?