**CHAPTER 3. REVIEW OF LITERATURE**

The first lawn mower was invented by Edwin Budding in 1830 in Thrupp, just outside Stroud, in Gloucestershire, England. Budding's mower was designed primarily to cut the grass on sports grounds and extensive gardens, as a superior alternative to the scythe, and was granted a British patent on August 31, 1830.In 1995, the first fully solar powered robotic mower became available. The mower can find its charging station via radio frequency emissions, by following a boundary wire, or by following an optional guide wire [5].

Automation is rapidly growing in the present technology. So automation plays a vital role in the agricultural field which is helpful for the farmers. In the earlier days, the grass cutters used were manually handheld devices. Because of this, there was pollution and loss of energy as they used gas and petrol engines. So the old grass cutters need to be replaced by automated ones[1].

Grass cutter machines have become very popular today. Most of the times, grass cutter machines are used for soft grass furnishing. In a time where technology is merging with environmental awareness, consumers are looking for ways to contribute to the relief of their own carbon footprints.Herein, we propose a model of the automatic grass cutting machine. Automatic grass cutting machine is a machine which is going to perform the grass cutting operation on its own. This model reduces both environment and noise pollution [2].

Smart Grass Cutter is a fully automated grass cutting robotic vehicle that also avoids obstacles and is capable of cutting grass without the need of any human interaction. So the traditional grass cutters are to be replaced by daily purpose robot which will be capable of cutting the grass in lawn without human intervention[3].

It is also interfaced to an ultrasonic sensor for object detection. The microcontroller moves the vehicle motors in forward direction in case no obstacle is detected. On obstacle detection, ultrasonic sensor monitors it and the microcontroller thus stops the grass cuter motor so as to avoid any damage to the object/human/animal. Microcontroller then turns the robotic vehicle off until it gets clear of the object and then moves the grass cutter in forward direction again [6].

The Ultrasonic distance sensor provides precise, non-contact distance measurements from about 2cm to 3meters. It is very easy to connect to Micro Controllers, propeller chip, or arduino, requiring only one i/o pin. The sensor has amale3-pinheader used to supply ground, power and signal[7].

The system uses 12V batteries to power the vehicle movement motors as well as the grass cutter motor. The grass cutter and vehicle motors are interfaced to an 8051 family microcontroller that controls the working of all the motors[4].